ORDER NO. VRD8901M103

Service Manual

General Description
Adjustment Procedures
Block / Schematic Diagrams
Exploded Views / Parts List

Panasonic S-VHS-C VHS PAL 625

Hi-Fi HQ

S-VHS-C Movie

NV-MS50 B/EG/E EP/EW

AC Adaptor

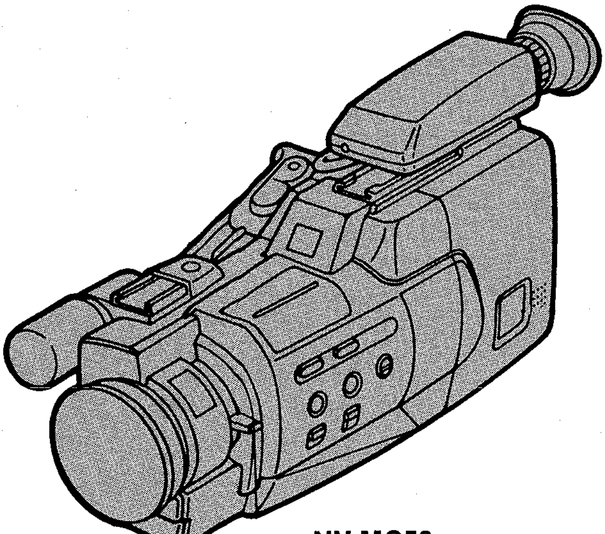
VW-AMC2E

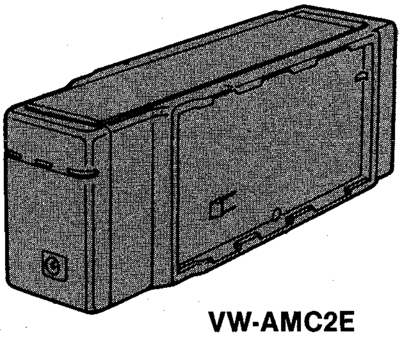
Character Generator

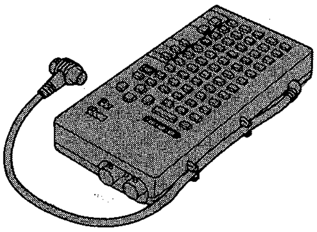
VW-CG2E

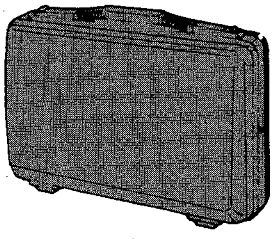
System Case

VW-SHMC4E


NV-MC50


VW-AMC2E


VW-CG2E


VW-SHMC4E

Panasonic

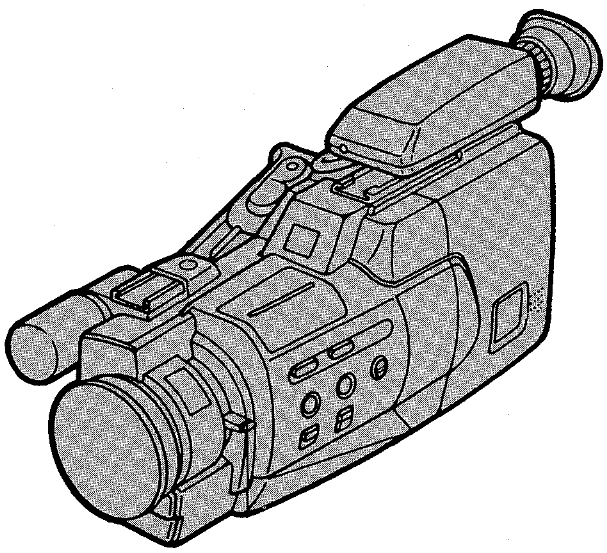
Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

INTRODUCTION

This service manual contains technical information which will allow service personnels to understand and service this model.
Section 1 presents you with some general information of features and controls, enabling you to become familiar with each function.
Section 2 contributes to your mechanical and electrical adjustment as well disassembly and replacement procedures.
In the case of very common information relating to other models like mechanical adjustments, please refer to each service manual.
Section 3 contains block diagrams which offers you information for checking and understanding each circuit. Schematic diagrams which give you detailed information such as waveforms, voltage data, function e.t.c...
Section 4 contains exploded views and parts list.
Please place orders using the parts list and not the drawing reference numbers.
If the circuit is changed or modified, this information will be followed by supplementary service manual to be filed with original service manual.

S-VHS-C Movie

NV-MS50 B/EG/E EP/EW



SPECIFICATIONS

ITEM	SPECIFICATION
POWER	Source: BATTERY; DC 9.6V Consumption; Camera search mode; 11.5W (Battery operation)
VIDEO RECORDING SYSTEM	4 rotary heads, helical scanning system PAL
FM AUDIO RECORDING SYSTEM	4 rotary heads, helical scanning system
TAPE FORMAT	S-VHS-C, VHS-C Cassette Tape (Tape width 12.7mm)
TAPE SPEED	SP mode: 23.39mm/s LP mode: 11.70mm/s Record/Playback Time SP mode: 30min. with NV-EC30HG LP mode: 60min. with NV-EC30HG FF/REW Time less than 3min. with NV-EC30HG
CAMERA	PICK-UP ELEMENT: CCD (Charge Coupled Device)
	STANDARD ILLUMINATION: 1,400 lux
	MINIMUM REQUIRED ILLUMINATION: 10 lux
	LENS: Built-in 6 : 1, 2 Speed Power Zoom Lens with MACRO Function, Auto Iris, Auto Focus System, F1.2 (9~54mm), Lens Front Diameter/ϕ49mm
	VIEW FINDER: 2/3″ Electric View Finder

ITEM	SPECIFICATION
VIDEO	HEADS: 8 rotary heads, 1 flging erase head
	OUTPUT: 8 PIN CONNECTOR; 1.0Vp-p 75Ω unbalanced S-Video out terminal 1.0Vp-p 75Ω unbalanced
AUDIO	HEAD: 1 Stationary head (Normal Audio)
	INPUT: MIC IN (M3); −70dB, 4.7kΩ unbalanced
	OUTPUT: 8 PIN CONNECTOR; −8dB 600Ω unbalanced
WEIGHT	Approx. 1.4kg (without Battery Pack)
DIMENSIONS	125(W)×159(H)×283(D)mm
ACCESSORIES	1 pc. AV Output Cable 1 pc. AC Adaptor 1 pc. Battery Pack 1 pc. Shoulder Strap 1 pc. AC Plug Adaptor 1 pc. RF Adaptor 1 pc. Battery for Clock 1 pc. VHS-C Cassette Adaptor 1 pc. VHS-C Cassette Tape 1 pc. Charactor Generator 1 pc. Car Battery Cord 1 pc. Handgrip 1 pc. Soft Case 1 pc. Pause Remote Control Unit 1 pc. System Case

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

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Technical Information

Service Caution

1. Servicing the VTR Section

When servicing the VTR section, connection of the extension cables and Y/C separator are necessary as shown in Fig. S1, S2.

Servicing Fixtures (VTR Section)

PART NO.	PART NAME	PCS	CONNECTION
VFKS0067	Extension Cable (22P)	1	P2001~P2601
VFKS0075	Extension Cable (16P)	1	P5001~P3501
VFKS0060	Extension Cable (2P)	1	P6009~LOADING MOTOR
VFK0499	Extension Cable (3P)	3	P6005~MODE SELECT SW P6013~SAFETY TAB SW P6010~REEL SENSOR
VFK0304	Y/C Separator	1	———
VFK0430	Extension Cable (14P)	1	P3502~VFKS0074
VFKS0074	Connector	1	Y/C Separator~VFK0430

Fig. S1

Connection Method of Extension Cables

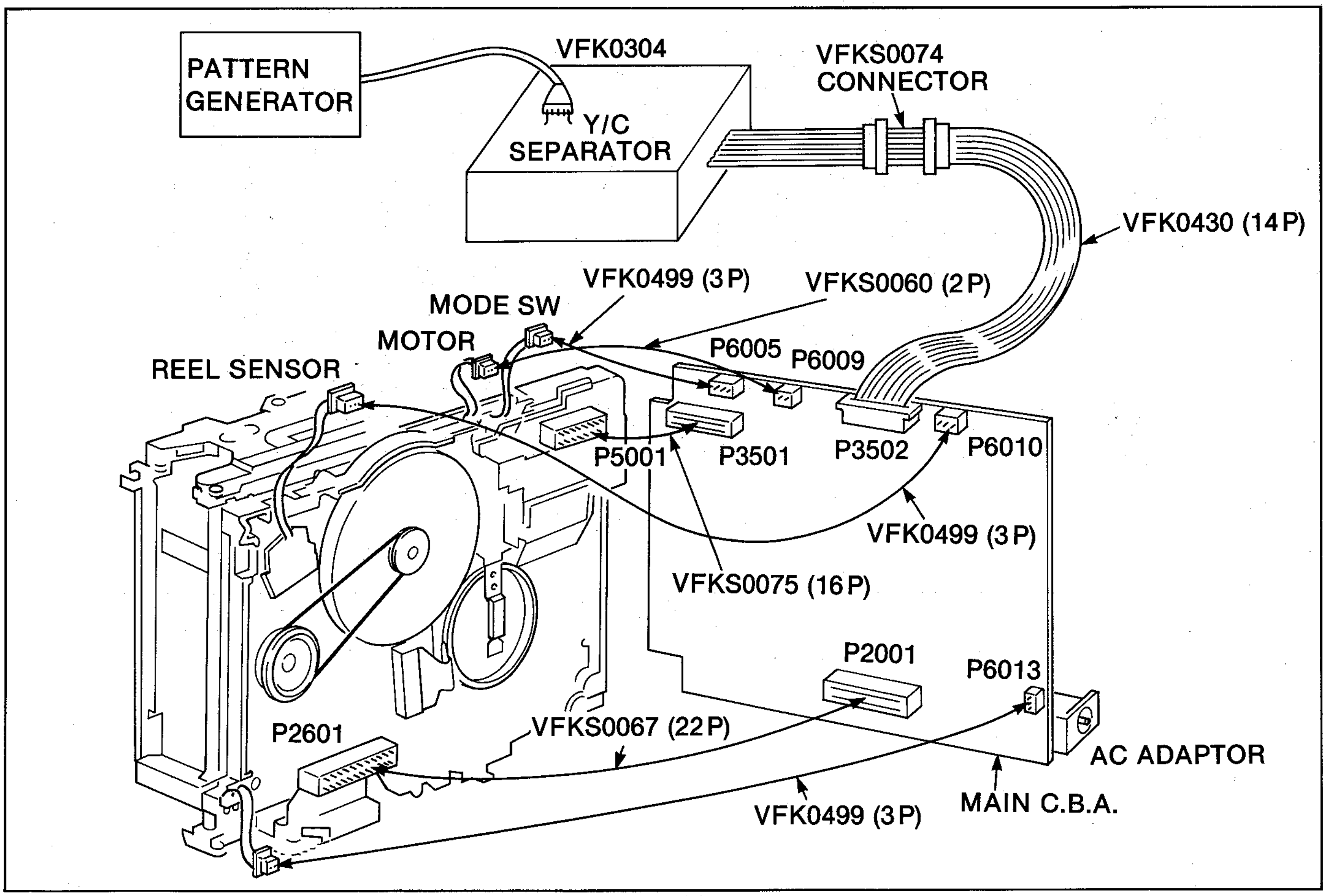
PATTERN GENERATOR
VFK0304
Y/C SEPARATOR
VFKS0074 CONNECTOR
VFK0430 (14P)
VFK0499 (3P)
VFKS0060 (2P)
MODE SW
MOTOR
P6005
P6009
REEL SENSOR
P5001
P3501
P3502
P6010
VFK0499 (3P)
VFKS0075 (16P)
P2001
P6013
P2601
VFKS0067 (22P)
AC ADAPTOR
VFK0499 (3P)
MAIN C.B.A.

Fig. S2

2. Servicing the Camera Section

When servicing the camera section connection of extension cables and Diffusion Plate are necessary as shown in Fig. S3, S4.

Servicing Fixture (Camera Section)

PART NO.	PART NAME	PCS	CONNECTION
VFKS0051	**Extension Cable (3P)**	**1**	**P704~ACTUATOR UNIT**
VFKS0052	**Extension Cable (6P)**	**1**	**P701~FOCUS & ZOOM SENSOR**
VFK0503	**Extension Cable (5P)**	**1**	**FP302~FP601**
VFK0380	**Extension Cable (18P)**	**1**	**B301~B201**
VFK0497	**Extension Cable (6P)**	**1**	**P703~FOCUS MOTOR & IRIS MOTOR**
VKM1049	**Diffusion Plate**	**1**	———

Fig. S3

Connection Method of Extension Cables

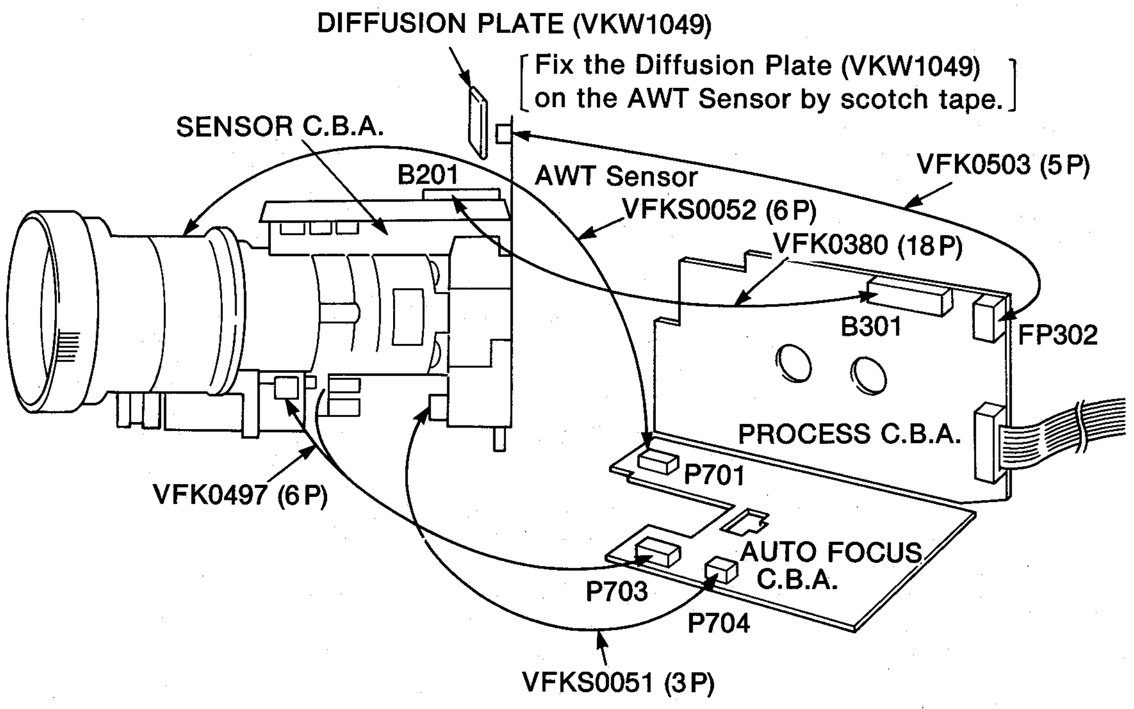
DIFFUSION PLATE (VKW1049)
Fix the Diffusion Plate (VKW1049) on the AWT Sensor by scotch tape.
SENSOR C.B.A.
B201
AWT Sensor
VFK0503 (5P)
VFKS0052 (6P)
VFK0380 (18P)
B301
FP302
PROCESS C.B.A.
P701
VFK0497 (6P)
AUTO FOCUS C.B.A.
P703
P704
VFKS0051 (3P)

Fig. S4

3. How To Use Camera Holder Arm (VFK0431)

This Camera Holder Arm which is adjustable the span must be mounted to VFK0382 (Camera Holder of NV–M5) and it can be used with VFK0432 for camera adjustments or checking.

(A) ---	VFK0432	Holder Spacer (2pcs.)
(B) ---	VFK0431	Camera Holder Arm
(C) ---	XSN26+18	Screw (2pcs.)
(D) ---	VFK0382	Camera Holder

1. Fix the Holder Arm (4) and (5) temporarily by screw (1) as shown in Fig.S5.
2. Mount the Camera Holder Arm (B) to the Camera Holder (D) by screws (2) and (3) as shown in Fig. S6.
3. Tightn the screws (C) with the Holder Spacers (A) as shown in Fig. S5.

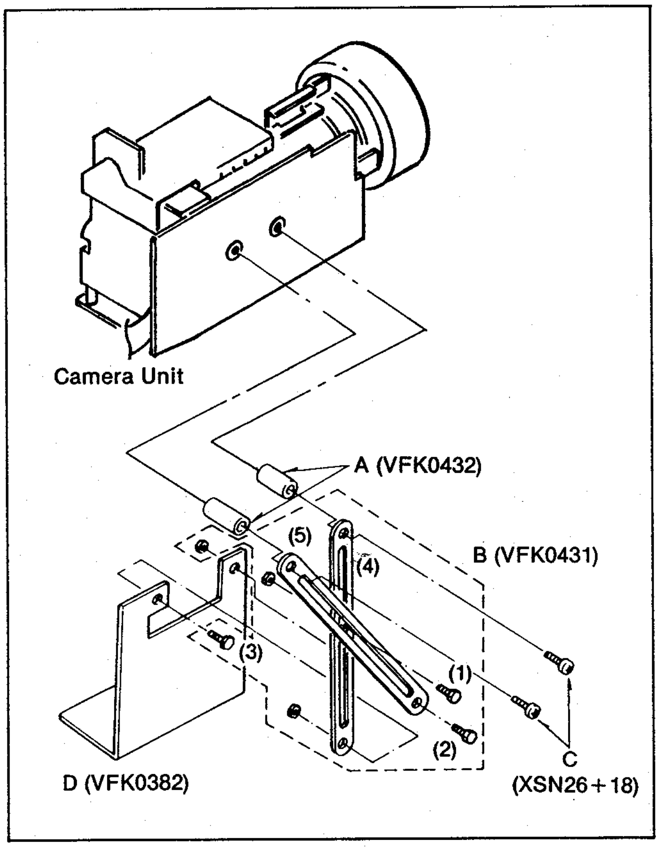
Camera Unit
A (VFK0432)
(5)
(4)
B (VFK0431)
(3)
(1)
(2)
C
(XSN26+18)
D (VFK0382)

Fig. S5

4. How To Connect the Y/C Separator and Y/C Separator Connection Cable

When the Y/C Separator Connection Cable (VFKS0074) is used to connect to Y/C Separator the caution should be paid the following items:

*Cut off the marked portion of Y/C Separator output connector as shown in Fig.S7

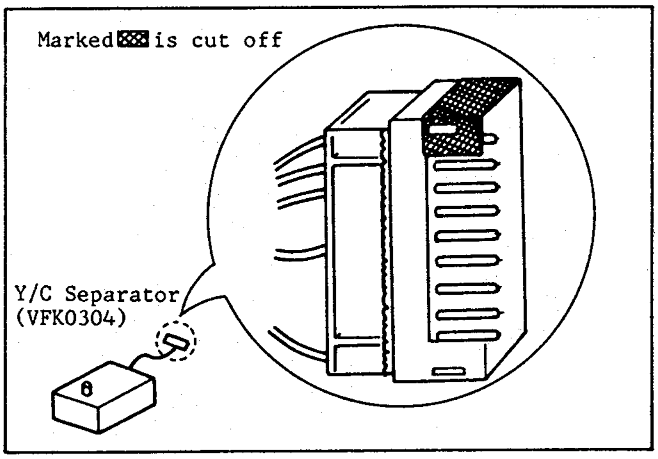
Marked ▨ is cut off
Y/C Separator
(VFK0304)

Fig. S7

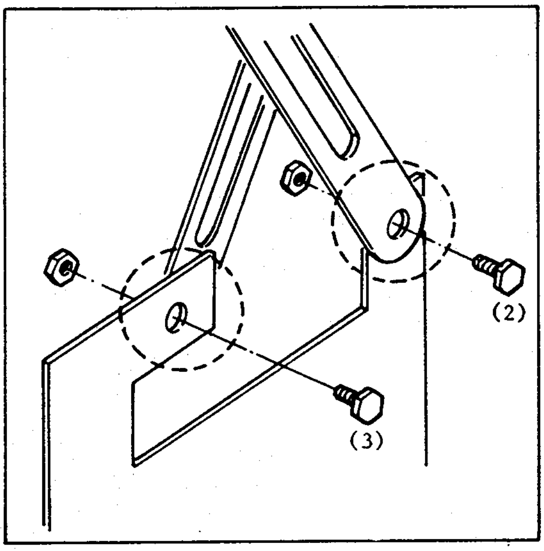

Fig. S6

5. Set Tracking Control to the Fixed position

If the Tracking Control is required to be in the fixed (neutral) position, push both of the tracking Control Up/Down Switchs, on the Main C.B.A., in at the same time in Playback Mode.

6. Manual Eject–Tape in and Carriage closed

1. Remove Cassette Cover by removing 2 Screws.
2. Push on upper end of Lock Lever to release cassette carriage.

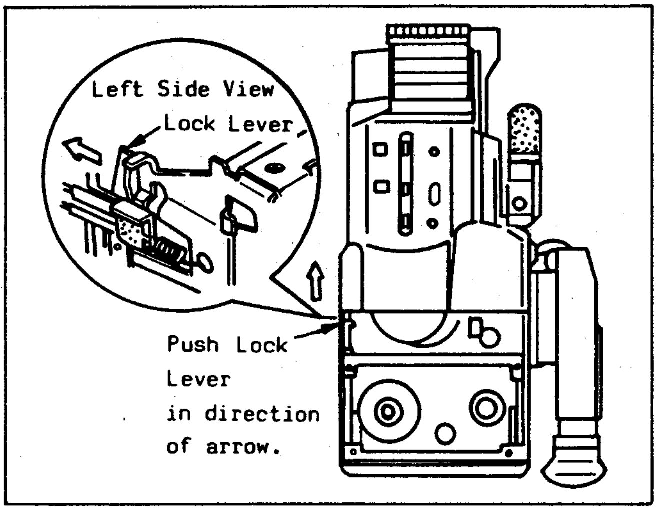

Fig. S8

7. Elimination of Tape slack

Before inserting the Cassette Tape in the VHS–C Movie, take up slack in the tape by turning the Takeup Tape Gear on the side of the Cassette Tape. Turn it in the direction of the arrow until no slack is evident and opposite reel begins to turn.

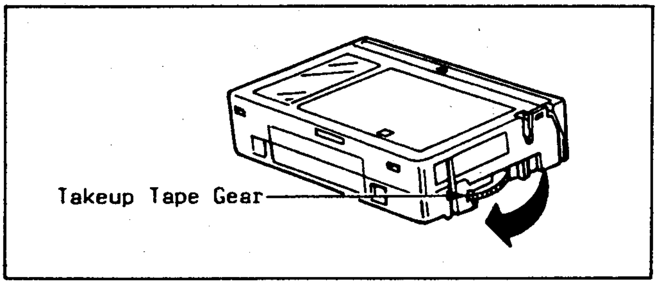

Fig. S9

8. Insertion (or Removal) of cassette Tape

As in Fig. 5, hold the tape vertically with fingers and thumb to insert or remove the tape. (Be sure to eliminate slack before inserting the tape.)

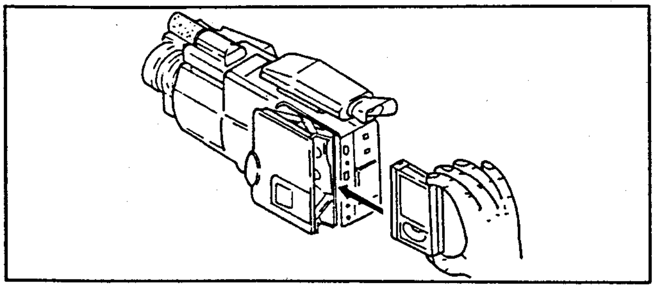

Fig. S10

9. Connection of the Flexible Cables to Trap Connectors

a. Removal

1. On the trap Connector, pull out on both ends of the Locking Tab Surrounding the cable end to release the Trap on the Connector. Then pull Flexible Cable out to remove as shown in Fig. 6.

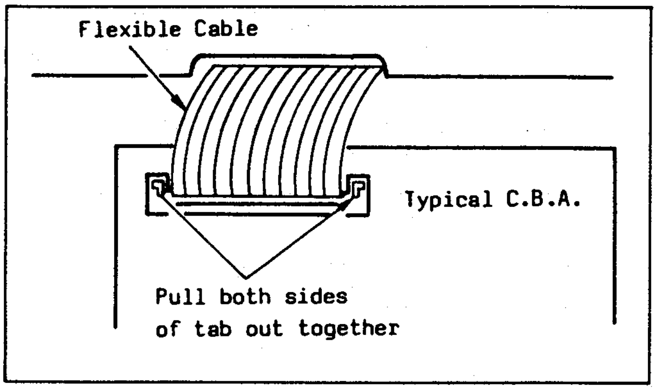

Fig. S11

b. Installation

1. Insert the end of the Flexible Cable into the Trap Connector so it lays smoothly across the slot.
2. Press the middle of the cable firmly against the Trap Connector slot, and hold it securly.
3. Without pinching the Cable, press the Locking Tabs in against the Trap Connector until both ends snap into their locked positions.
4. Pull lightly on the Cable to check for positive connection.

Note:

1. Take care when removing or installing the Flexible Cable to prevent Cable damage.

10. Service of Operation Bracket Unit

When removing and reinstalling the Operation Bracket Unit and Switch Cover, first, install the Switch Cover over the Operation Key portion (CAMERA MODE) of the Operation Bracket Unit, and then install assembly parts.

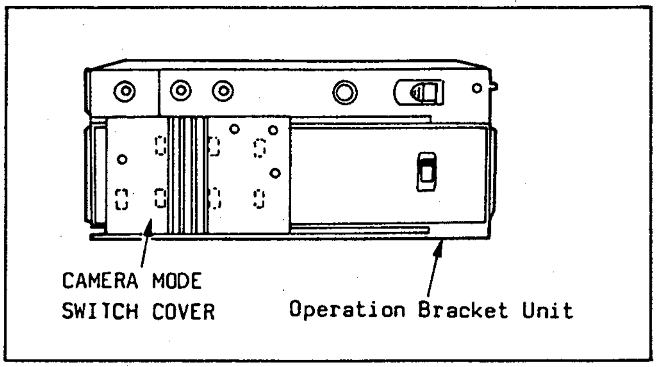

Fig. S12

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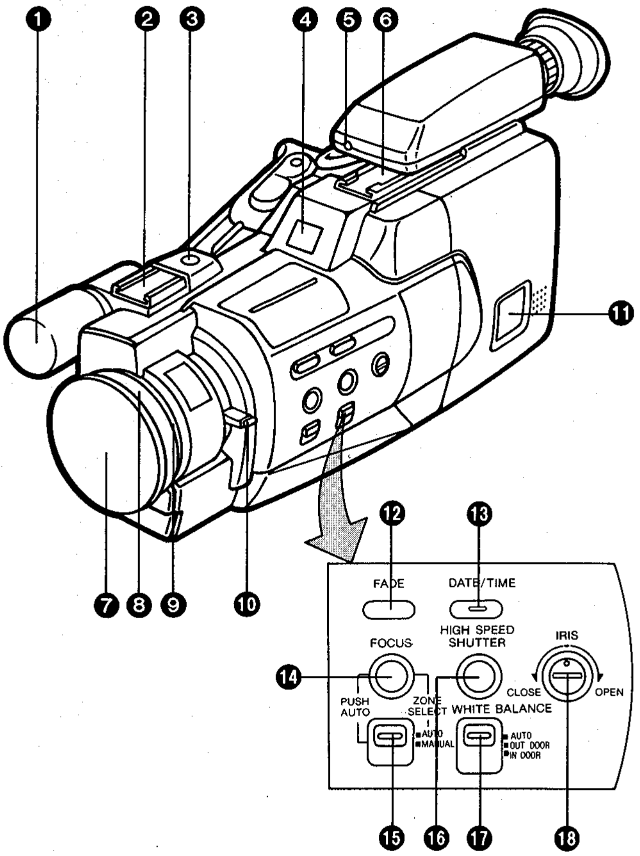
MECHANICAL REPLACEMENT PARTS LIST

ELECTRICAL REPLACEMENT PARTS LIST

SECTION 1
GENERAL DESCRIPTION

1-1. CONTROLS AND COMPONENTS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SHUTTER
IRIS
FOCUS
⑭
PUSH
AUTO
ZONE
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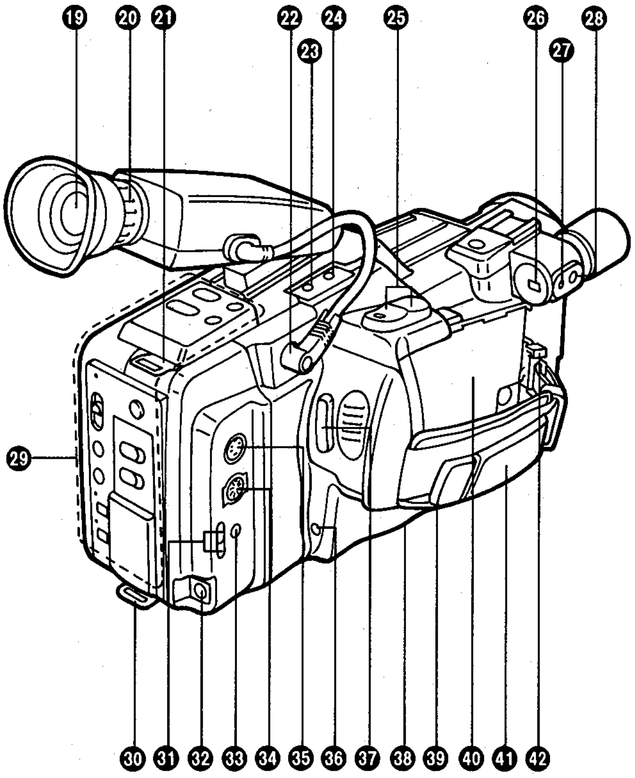
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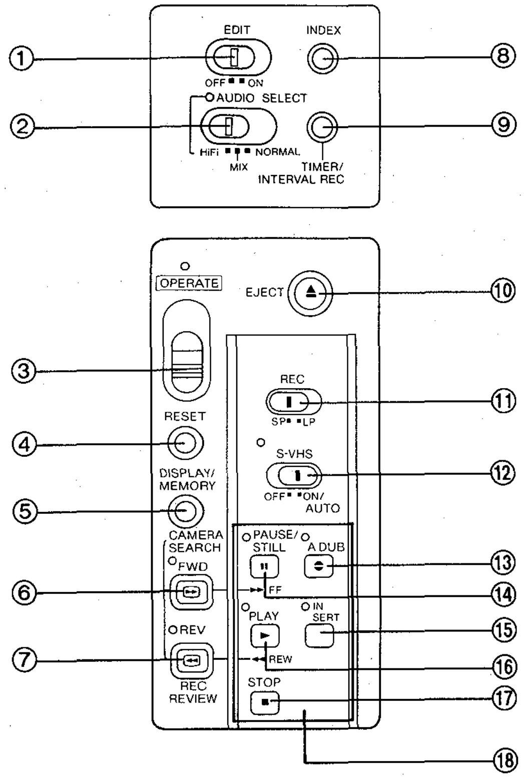
① Built-in Microphone
② Accessory Shoe
③ Start/Stop Button
④ White Balance Sensor Window
⑤ Tally Indicator
⑥ Accessory Shoe
⑦ Lens Cap
⑧ Lens Hood
⑨ Focus Ring
⑩ Manual Zoom Lever with Macro Button
⑪ Cassette Compartment
⑫ Fade Button
⑬ Date/Time Selector
⑭ Focus Adjusting Button/Zone Selector
⑮ Focus Mode Selector
⑯ High Speed Shutter Selector
⑰ White Balance Mode Selector
⑱ Iris Close/Open Control

⑲ Electronic Viewfinder
⑳ Eyepiece Corrector Control
㉑ Metal Fitting for Shoulder Strap
㉒ EVF/Character Generator Terminal
㉓ Date Shift Button
㉔ Date Set Button
㉕ Power Zoom Control Buttons
㉖ Microphone Sensitivity Selector
㉗ DC Power Output Socket
㉘ External Microphone Socket

㉙ General Operation Controls


EDIT
INDEX
OFF ON
AUDIO SELECT
HiFi MIX NORMAL
TIMER/ INTERVAL REC
OPERATE
EJECT
RESET
DISPLAY/ MEMORY
CAMERA SEARCH
FWD
REV
REC REVIEW
REC
SP LP
S-VHS
OFF ON/ AUTO
PAUSE/ STILL
A DUB
FF
PLAY
IN SERT
REW
STOP
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱

① Edit Switch
② Audio Select Switch
③ Operation On/Off Switch
④ Reset Button
⑤ Display/Memory Button
⑥ Fast Forward/Cue Button
⑦ Rewind/Review Button
⑧ Index Signal Recording Button
⑨ Timer/Interval Recording Button
⑩ Eject Button
⑪ Recording Speed Selector
⑫ S-VHS System Selector with Indicator
⑬ Audio Dubbing Button
⑭ Pause/Still Button
⑮ Insert Button
⑯ Play Button
⑰ Stop Button
⑱ Camera/VTR Selector Cover

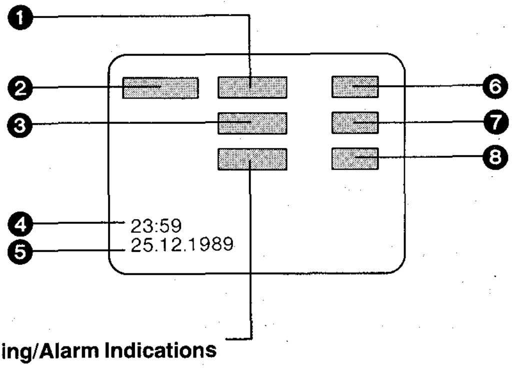
⑱ Function of the Camera/VTR Selector Cover

Closed (as illustrated)	For camera recording.
Open	For other operations than camera recording.

㉚ Metal Fitting for Shoulder Strap
㉛ Tracking Up/Down Buttons
㉜ DC Input Socket
㉝ Remote Control Socket
㉞ RF/AV Adaptor Socket
㉟ S-Video Output Connector
㊱ Earphone Socket
㊲ Start/Stop Button
㊳ Battery Compartment for Auto Date/Clock
㊴ Tripod Receptacle
㊵ Battery Holder
㊶ Grip Belt
㊷ Battery Locking Lever

1-2. Electronic Viewfinder

The following indications are displayed in the Electronic Viewfinder (EVF) to inform you of the operating conditions of the S-VHS-C Movie.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23:59
25.12.1989

Warning/Alarm Indications

BATT	There is little battery power left. The S-VHS-C Movie will be turned off in a few minutes. Replace the battery pack by a fully recharged one.
TAPE	It is impossible to record because the erasure prevention tab of the cassette is not intact.
END	During recording, the tape has almost reached its end. Replace the tape with a new one. The indication will remain lit when the tape has reached its end.
DEW	When condensation has formed inside the S-VHS-C Movie, the "DEW" indication will flash and a few seconds later, the unit will turn itself off.

- Some of the above indications may light up alternately at the same place in the EVF to indicate the corresponding operating condition or warning.

① Remaining Battery Power/Index Indication

E- - - F	The "▬" indications begin to disappear from right to left as the power of the battery pack weakens.
INDEX	This indicator flashes when a recording is started or when the Index Signal Recording Button is pressed and it indicates that an index signal is being recorded.

② Self-Timer/Interval Indication

SELF-20S	Self-timer recording for 20 seconds.
SELF-END	Self-timer recording until the end of the tape.
INTERVAL	Recordings of approx. 1 second will be made at 5-second intervals.

③ Counter Indication

M0123	Tape Counter
1:23	Lap Time Counter

④ Clock Indications

⑤ Date Indications

⑥ Recording/Insert Indication

REC	Recording
– – –	Recording Pause
INST	Insert
– – –	Insert Pause

⑦ S-VHS System Indication

S VHS	S-VHS System
" "	VHS System

⑧ High Speed Shutter Mode Indication

1/250	1/250 sec.
1/500	1/500 sec.
1/1000	1/1000 sec.

Camera Search Indication

– – →	In forward direction
← – –	In reverse direction

Recording Mode Indication

SP	SP mode
LP	LP mode

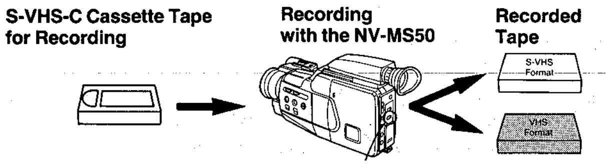
Manual White Balance indication

OUT	OUTDOOR
IN	INDOOR

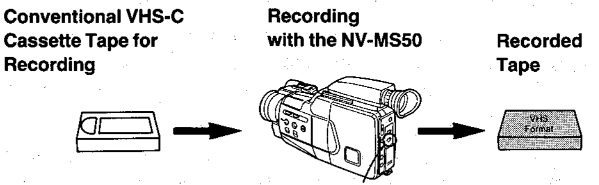
1-3. S-VHS FORMAT

Compatibility of VCRs and Tapes

When Recording

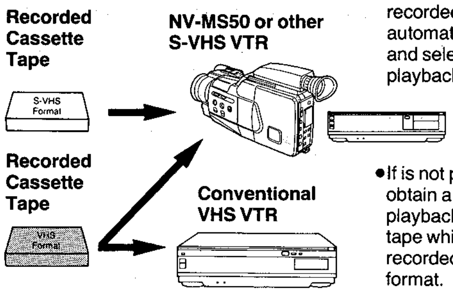

S-VHS-C Cassette Tape for Recording
Recording with the NV-MS50
Recorded Tape
S-VHS Format
VHS Format

Set the S-VHS System Selector to "ON/AUTO" (S-VHS format) or to "OFF" (VHS format).


Conventional VHS-C Cassette Tape for Recording
Recording with the NV-MS50
Recorded Tape
VHS Format

The recording is made in the VHS format irrespective of the position to which the S-VHS System Selector is set. (It is not possible to record in the S-VHS format.)

When Playing Back



- The video format in which the tape was recorded will be automatically detected and selected for playback.
- If is not possible to obtain a normal, clean playback picture from a tape which was recorded in the S-VHS format.

About the S-VHS Format

The S-VHS video format is the new video system that fulfills the exceedingly high demands and expectations of today's video-information age.

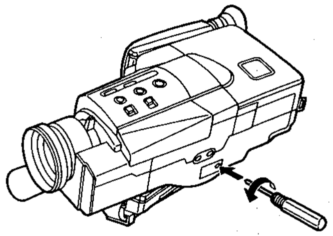
It is newly developed based on the VHS video format established throughout the world for home use and employs a wealth of latest technology to provide higher resolution and picture quality. The newly developed, high-performance S-VHS-C video cassette tapes enable the S-VHS format to realize truly epoch-making improvements in overall picture quality and clarity.

This S-VHS-C camera recorder allows high picture quality recording and playback by using the video cassettes carrying the S-VHS-C mark as well as conventional VHS recording and playback on the video cassettes bearing the VHS-C mark.

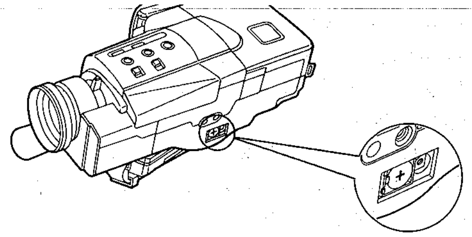
1-4. Setting of the Date and Clock & Recording the Date/Clock Indications

How to Insert the Battery for the Clock Operation

① Remove the lid on the bottom of the S-VHS-C Movie with a (+) screwdriver.



② Insert the "LR1130" size battery with the polarities (⊕ and ⊖) aligned correctly and then replace the lid.
- The clock starts working as soon as the battery is inserted.

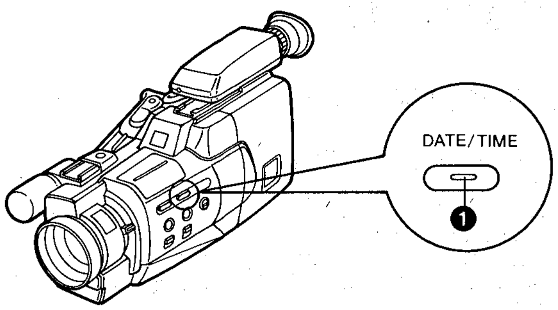


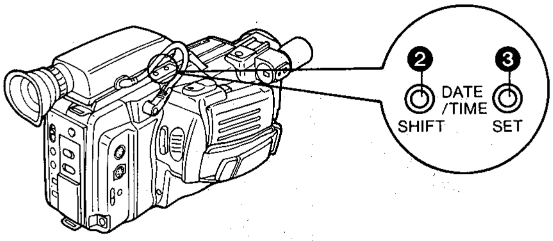
The "LR1130" size battery (supplied) is necessary for the operation of the built-in digital clock, and to memorize the Date/Clock Indications when the S-VHS-C Movie is turned off.

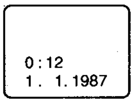
Cautions

- When this battery is almost exhausted, the whole time and date indication will flash.
- When this battery is completely exhausted, the indication "PLEASE SET BATTERY" will appear.
- To make this indication disappear, press the Date/Time Selector twice.
- If this indication is still displayed after the battery has been replaced, turn the S-VHS-C Movie off and then on again.

Setting of the Date and Clock







❶ When the Date/Time Selector is pushed, the indication shown on the right will appear in the EVF.

- If no battery is inserted, the indication "PLEASE SET BATTERY" will light up. In this case, insert the battery as described on page 23.

❷ When the Shift Button is pushed, the flashing portion will be changed in the following sequence.

Year→Month→Date→Hour→Minute

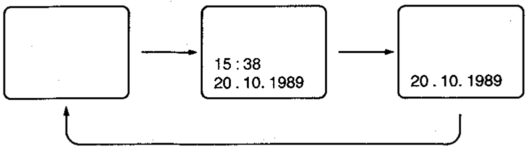
❸ When the Set Button is pushed, the flashing portion displayed will be changed in the following sequence.

YEAR: 1987→1988→.................. →2086
MONTH: 1→2→ .... →12
DATE: 1→2→ .... →28→(29)→(30)→(31)
HOUR: 0→1→ .... →23
MINUTE: 00→01→ .... →59

- Repeat procedures ❷ and ❸ until all five items have been set.
- Once the time and date are set, press the Shift Button in response to a precise time signal so that the clock may begin to function.

Recording the Date/Clock Indications
When the Date/Time Selector is pushed repeatedly, the indication will change in the following sequence.

To record neither the Date nor the Clock Indication:	To record the Date and Clock Indications:	To record only the Date Indication:



SECTION 2
ADJUSTMENT PROCEDURES

2-1. DISASSEMBLY PROCEDURES

2-1-1. DISASSEMBLY FLOW CHART

This flow chart indicates disassembly steps for the cabinet parts and the P.C.boards in order to find the items necessary for servicing.
When reassembling perform the steps in the reverse order.

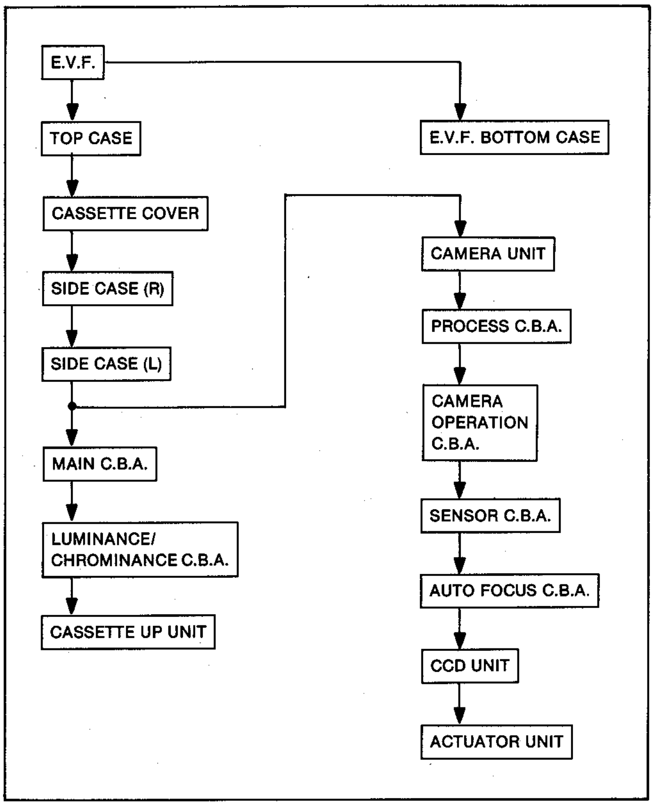

E.V.F.
TOP CASE
CASSETTE COVER
SIDE CASE (R)
SIDE CASE (L)
MAIN C.B.A.
LUMINANCE/ CHROMINANCE C.B.A.
CASSETTE UP UNIT
E.V.F. BOTTOM CASE
CAMERA UNIT
PROCESS C.B.A.
CAMERA OPERATION C.B.A.
SENSOR C.B.A.
AUTO FOCUS C.B.A.
CCD UNIT
ACTUATOR UNIT

Fig.D1

Note:
(1) When removing the cabinet, work with care so as not to break the locking tabs.
(2) Place a cloth or some other soft material under the P.C.Boards or Unit to prevent damage.
(3) When re–installing, ensure that the connectors are connected and electrical components have not been damaged.
(4) Do not supply power to the Unit during disassembly.

2-1-2. VTR SECTION

1. Removal of E.V.F. Unit

(1) Disconnect the E.V.F. connector and turn the E.V.F. upward.
(2) Keep pressing the part indicated by the arrow and remove the E.V.F. by sliding it toward the rear.

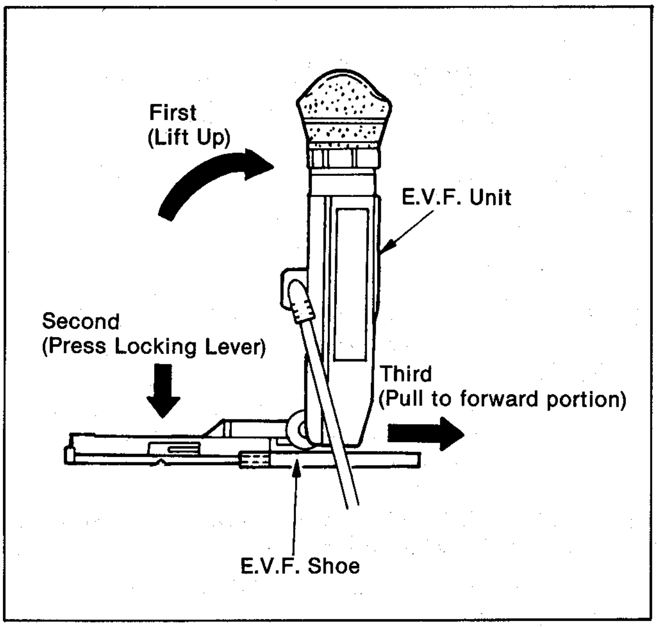

First
(Lift Up)
E.V.F. Unit
Second
(Press Locking Lever)
Third
(Pull to forward portion)
E.V.F. Shoe

Fig.D2

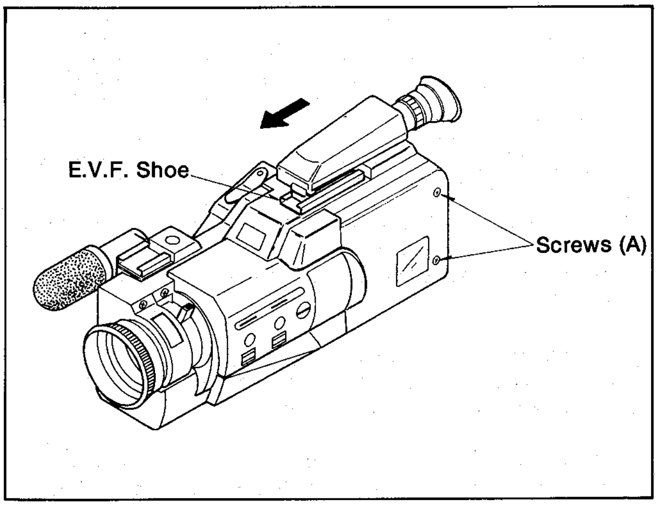

E.V.F. Shoe
Screws (A)

Fig.D3

2. Removal of Top case

(1). Remove 5 screws (A).
(2). Lift the top case slightly and then disconnect the connector P307 on process C.B.A. and flexible card P1 on VTR sub operation C.B.A.

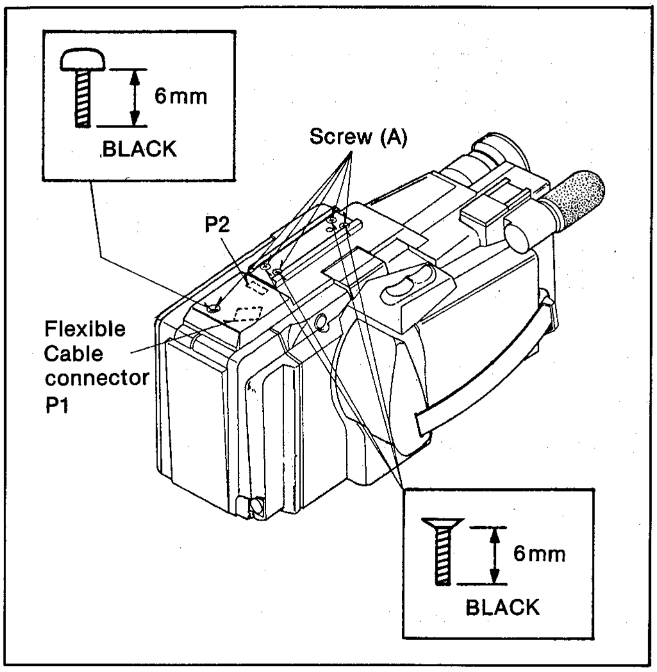

6mm
BLACK
Screw (A)
P2
Flexible Cable connector P1
6mm
BLACK

Fig.D4

3. Removal of cassette cover

(1). Remove 2 screws (B)
(2). Slide the cassette cover to remove.

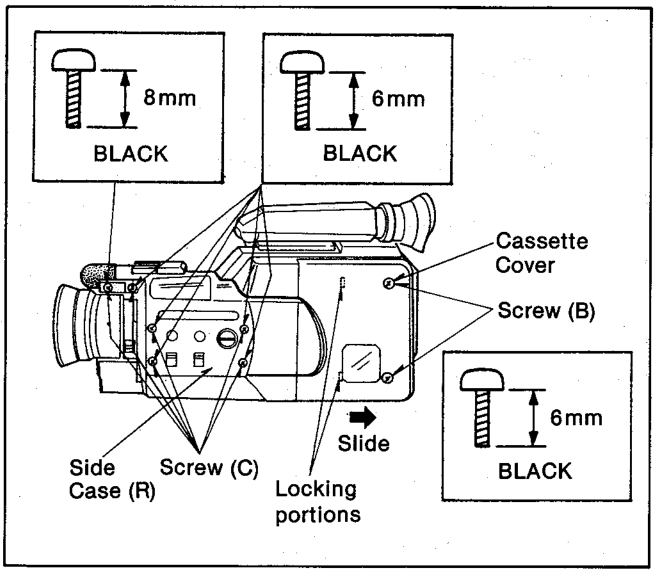

8mm
BLACK
6mm
BLACK
Cassette Cover
Screw (B)
6mm
BLACK
Slide
Side Case (R)
Screw (C)
Locking portions

Fig.D5

4. Removal of side case (R)

(1) Remove 6 screws (C) as shown in Fig. D5 and 4 screws (D).
(2) Remove the side case (R).

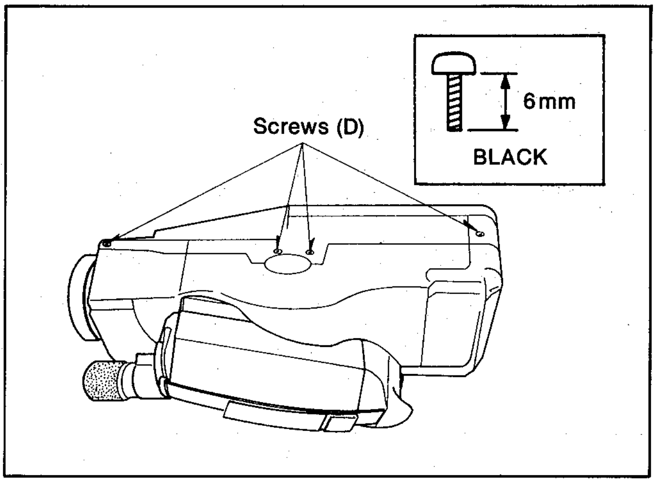

6mm
BLACK
Screws (D)

Fig.D6

5. Removal of side case (L)

(1). Remove 4 screws (E) as shown in Fig. D7 and 3 screws (F) as shown in Fig. D9.
(2). Disconnect the connectors P1001, P4005 on Main C.B.A. and connectors P4501, P4506 on Hi-Fi Audio C.B.A.

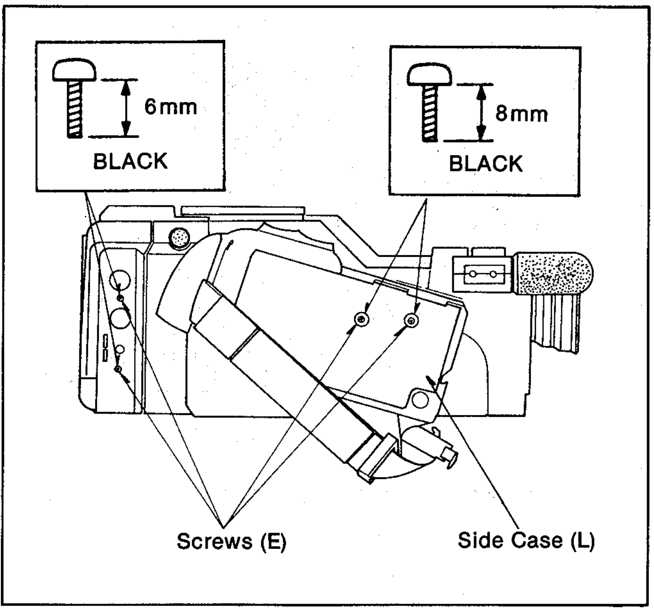

6mm
BLACK
8mm
BLACK
Screws (E)
Side Case (L)

Fig.D7

(3). Disconnect the connector P307.

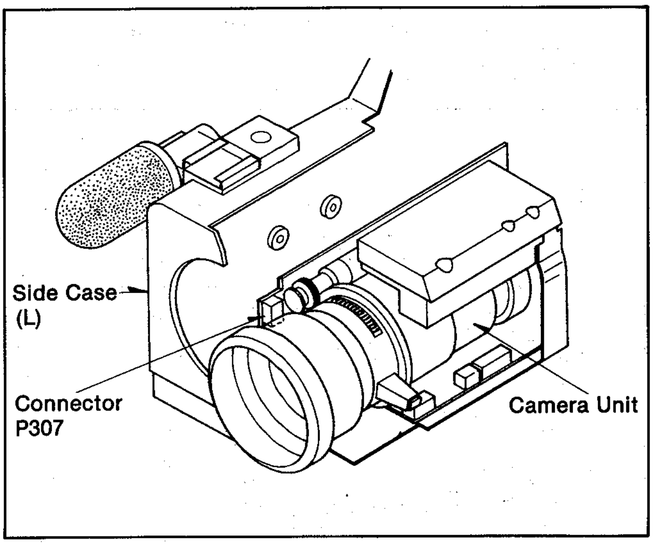

Side Case (L)
Connector P307
Camera Unit

Fig.D8

(4). Disconnect the flexible cards FP001 on camera operation C.B.A. and FP306 on process C.B.A. and slide carefully in direction shown by arrow in Fig. D9.
(5) Remove the side case (L).

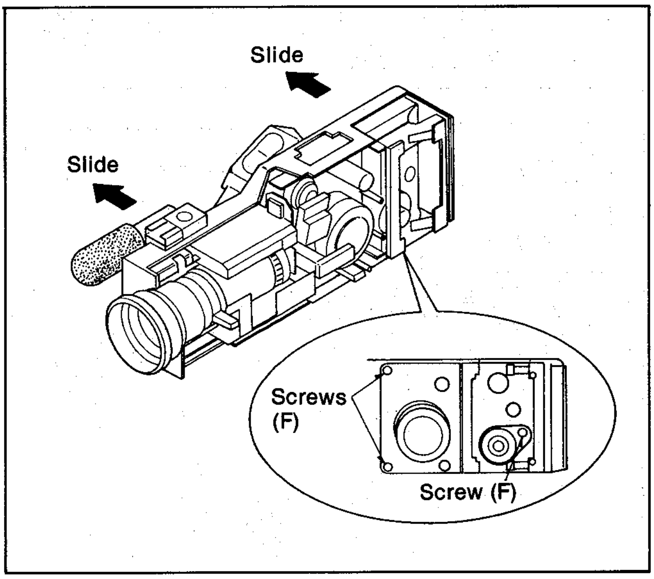

Slide
Slide
Screws (F)
Screw (F)

Fig.D9

6. Removal of Main C.B.A.

(1). Remove screw (G) to remove the Main C.B.A.

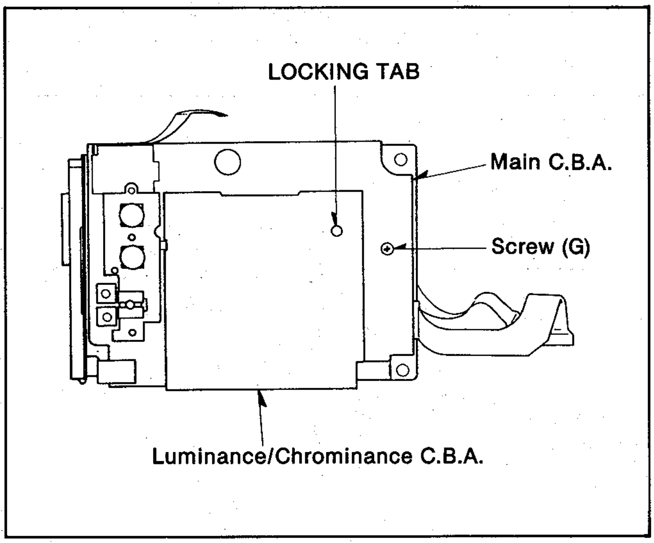

LOCKING TAB
Main C.B.A.
Screw (G)
Luminance/Chrominance C.B.A.

Fig.D10

7. Removal of Luminance/Chrominance C.B.A.

(1). Unlock locking tab to lift it up.
(2). Remove the luminance/chrominance C.B.A.

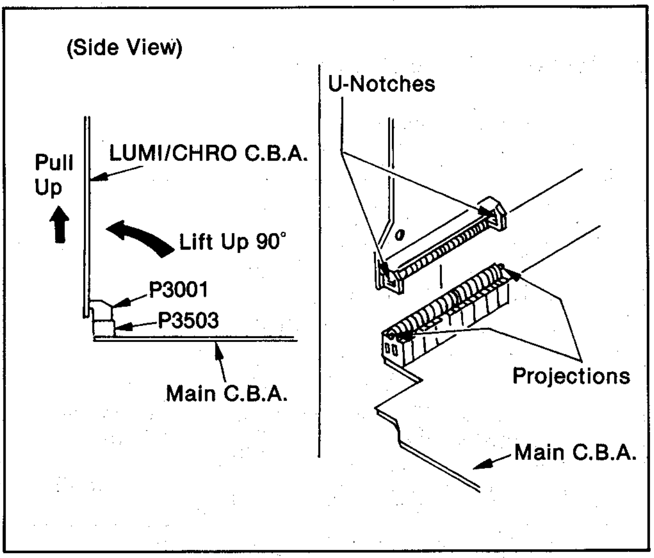

(Side View)
Pull Up
LUMI/CHRO C.B.A.
Lift Up 90°
P3001
P3503
Main C.B.A.
U-Notches
Projections
Main C.B.A.

Fig.D11

8. Removal of cassette up Unit

(1). Remove 2 screws (H)
(2). Slide the cassette Up Unit in direction of allow and release the pins on the moving levers of cassette up unit from the enlarged circular insertion hole at end of the cassette guide slot.

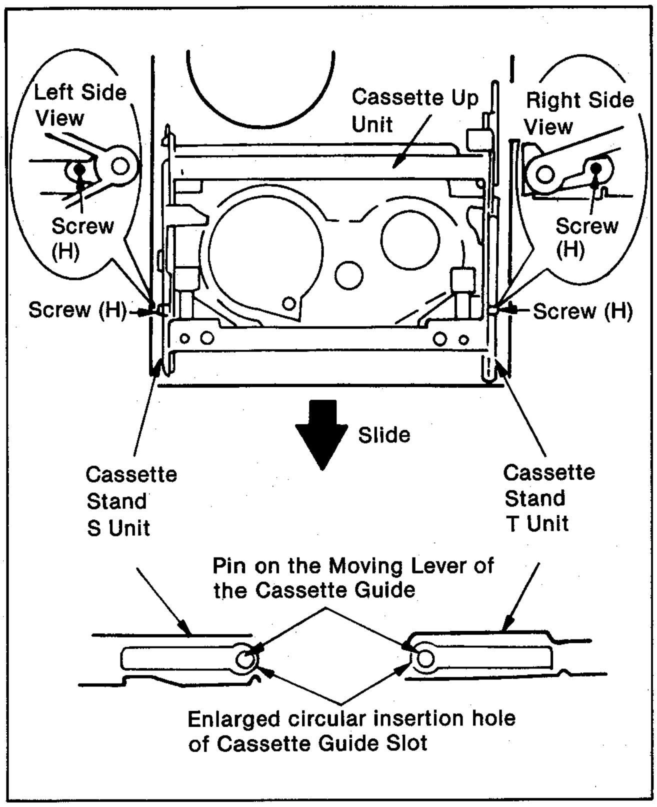

Left Side View
Screw (H)
Cassette Up Unit
Right Side View
Screw (H)
Screw (H)
Screw (H)
Slide
Cassette Stand S Unit
Cassette Stand T Unit
Pin on the Moving Lever of the Cassette Guide
Enlarged circular insertion hole of Cassette Guide Slot

Fig.D12

2-1-3. CAMERA SECTION

1. Removal of process C.B.A.

(1). Remove 2 screw (I) and disconnect the connectors P303, P308, B305, B301, P309 and flexible card FP302 on process C.B.A.
(2). Remove the process C.B.A.

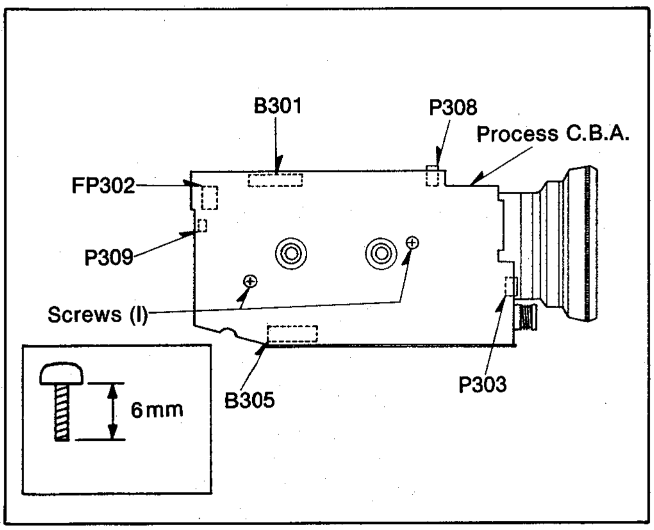

B301
P308
Process C.B.A.
FP302
P309
Screws (I)
B305
P303
6mm

Fig.D13

2. Removal of camera operation C.B.A.

(1). Remove screw (J) and disconnect the connectors P001, P002 on camera operation C.B.A.
(2). Remove the camera operation C.B.A.

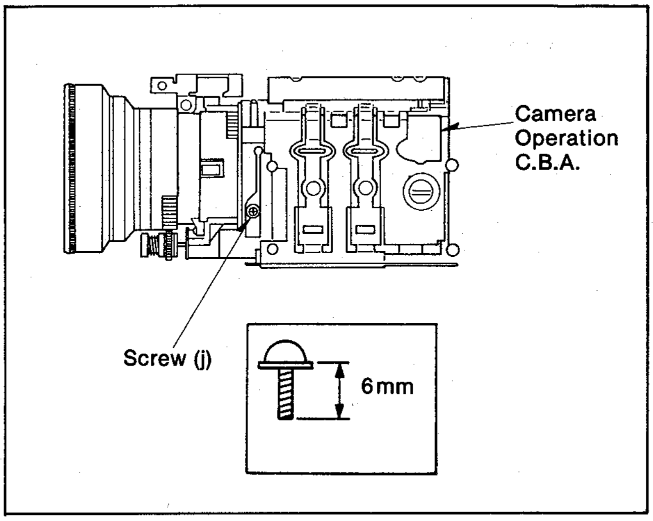

Camera Operation C.B.A.
Screw (j)
6mm

Fig.D14

3. Removal of sensor C.B.A.

(1). Remove 2 screws (K) to remove the shield box.

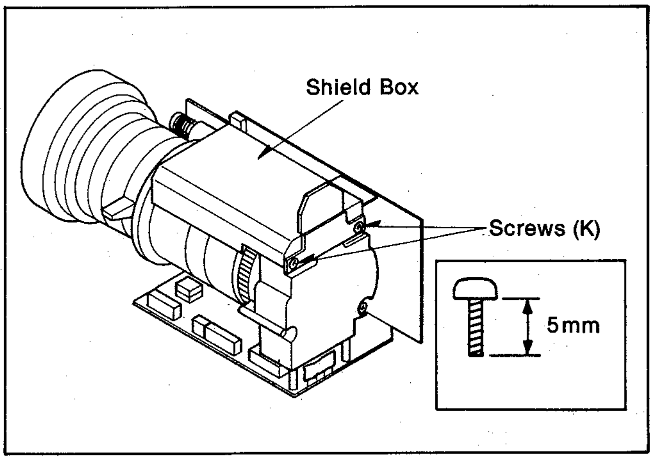

Shield Box
Screws (K)
5mm

Fig.D15

(2). Remove 2 screws (L) and disconnect the flexible card FP201 on sensor C.B.A.
(3). Remove the sensor C.B.A.

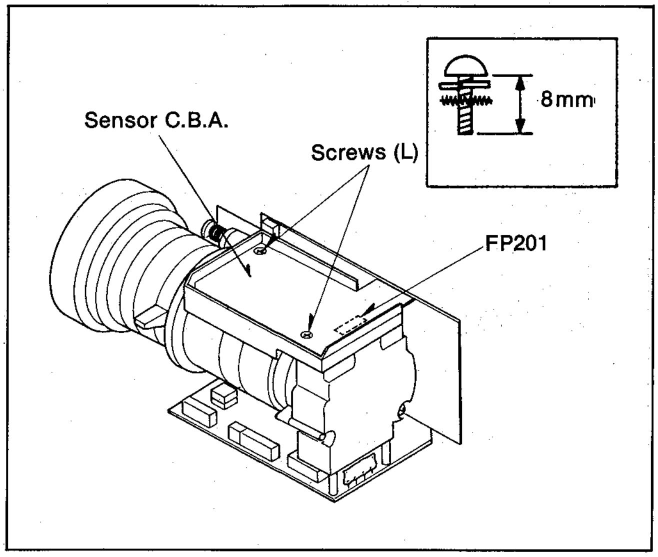

Sensor C.B.A.
Screws (L)
8mm
FP201

Fig.D16

4. Removal of Auto Focus C.B.A.

(1). Remove 3 screws (M) and disconnect the connectors P703, P704, P705, P701 on Auto Focus C.B.A.
(2). Remove Auto Focus C.B.A.

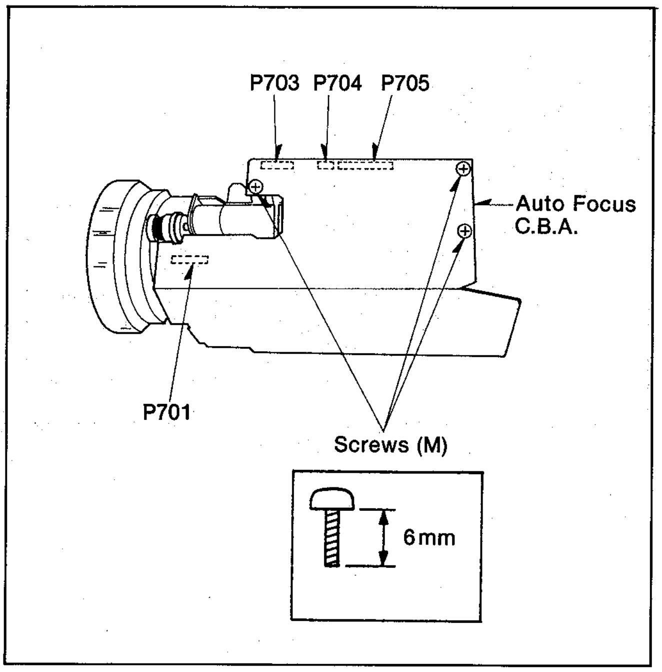

P703
P704
P705
Auto Focus C.B.A.
P701
Screws (M)
6mm

Fig.D17

5. Removal of CCD Unit

(1). Remove 2 screws (N)
(2). Remove 2 screws (O) and then take out the CCD Shield box.
(3). Remove 2 screws (P) and then take out the CCD Unit.

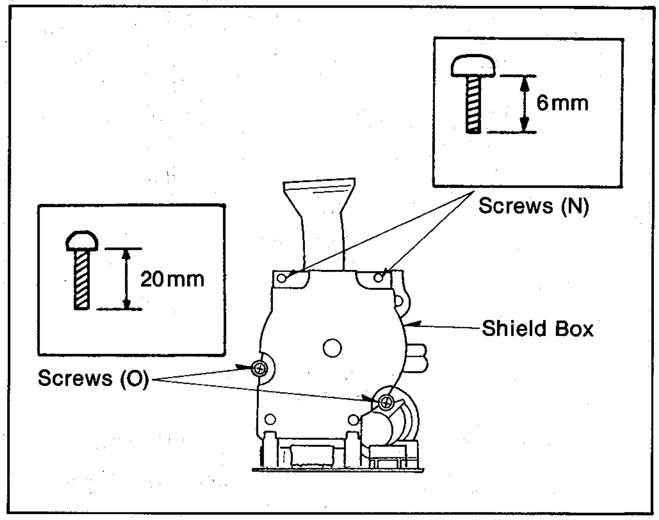

6mm
Screws (N)
20mm
Shield Box
Screws (O)

Fig.D18

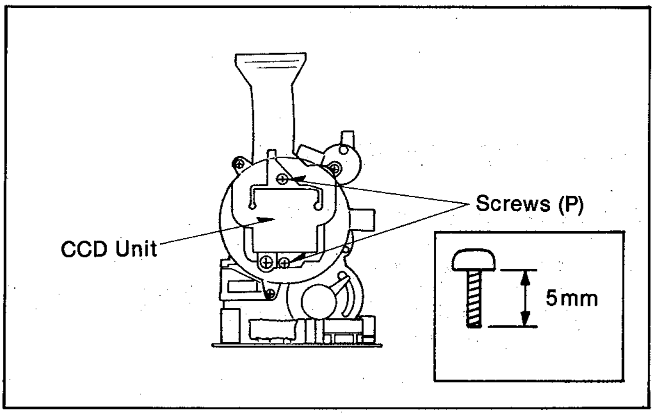

Screws (P)
CCD Unit
5mm

Fig.D19

6. Removal of Actuator Unit

(1). Remove 3 screws (Q) and remove actuator unit.

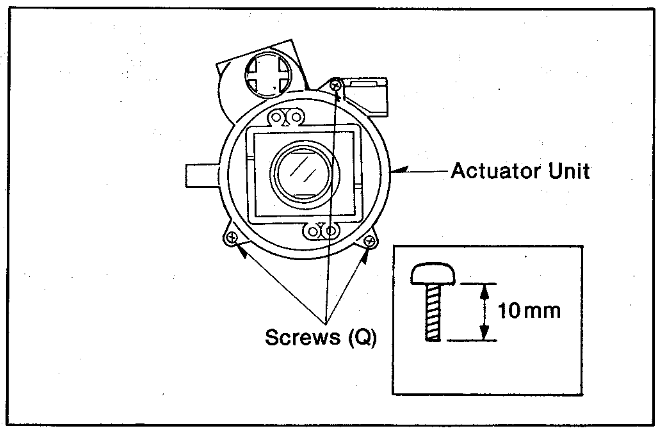

Actuator Unit
Screws (Q)
10mm

Fig.D20

2-1-4. E.V.F. SECTION

1. Removal of Bottom case

(1). Remove 2 screws (R) to remove the bottom case.

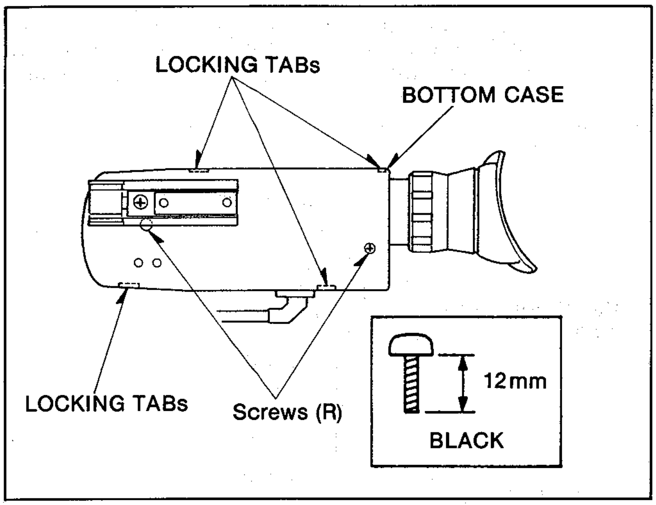

LOCKING TABs
BOTTOM CASE
LOCKING TABs
Screws (R)
12mm
BLACK

Fig.D21

2-2. PROCEDURE FOR CLEANING UPPER CYLINDER UNIT

(1) Position the Video Head to permit access for cleaning, and hold the Upper Cylinder to keep it from turning while cleaning.
(2) Gently rub the Video Head in the direction of tape travel with a Head Cleaning Stick (VFK27) moistened with Freon TF.
(3) Repeat for the other Video Heads.

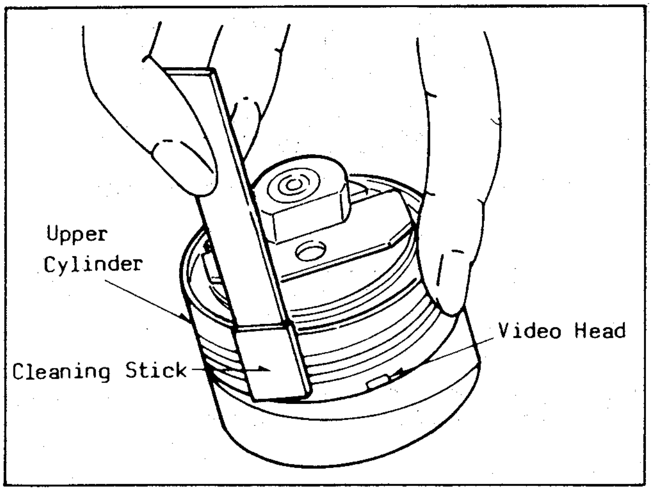

Upper Cylinder
Video Head
Cleaning Stick

Fig. U1

Note:
(1) Do not rub vertically.
(2) Do not apply any pressure to the head. If the contaminant is not easily removed, continued gentle wiping will usually remove it.

2-3. REPLACEMENT AND ADJUSTMENT PROCEDURES

2-3-1. REPLACEMENT OF FOCUS LENS UNIT

(1). Remove the camera unit from the VHS-C Movie.
(2). Remove the C.B.As (Process, Auto Focus, Sensor) from the camera unit.
(3). Unscrew the two screws (A) and remove the zoom motor.
(4). Unscrew the two screws (B) and remove the encoder C.B.A.
(5). Unscrew the screw (C) and remove the camera angle.

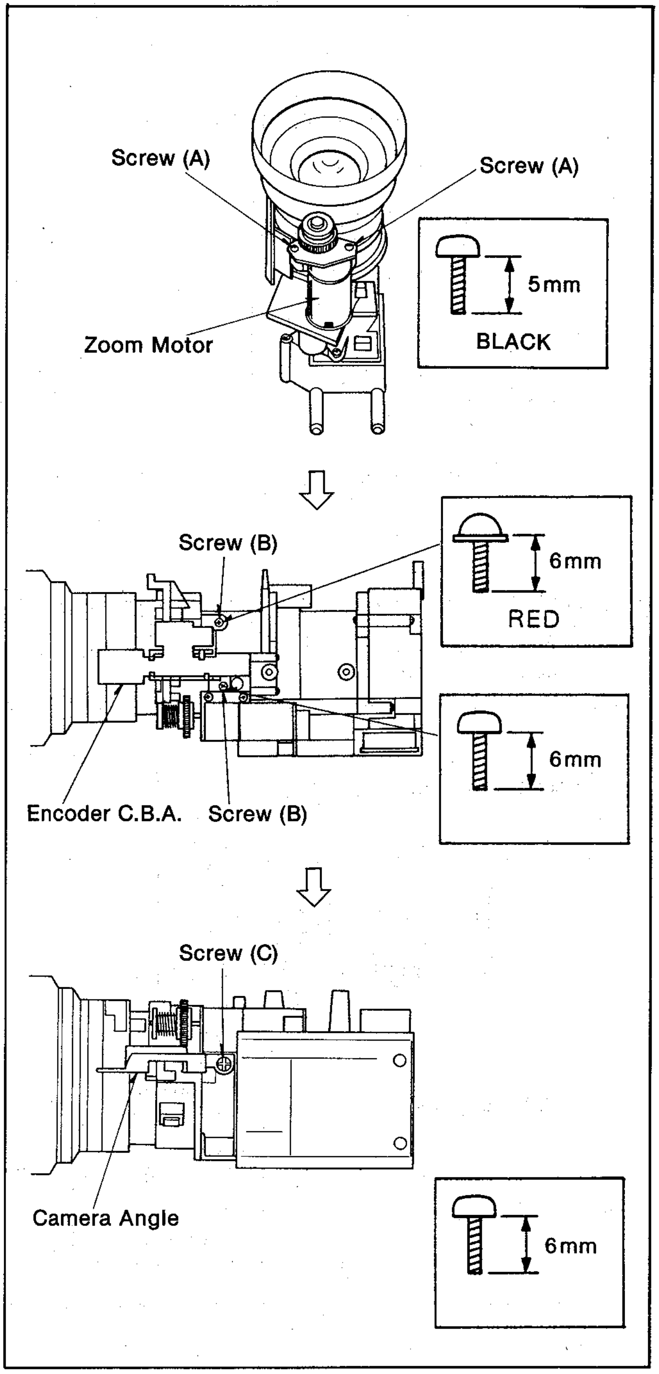

Screw (A)
Screw (A)
5mm
BLACK
Zoom Motor
Screw (B)
6mm
RED
6mm
Encoder C.B.A.
Screw (B)
Screw (C)
Camera Angle
6mm

Fig.M1

(6). Remove the focus ring lock and tape.
(7). Remove the focus ring by turning it to the counter clockwise.

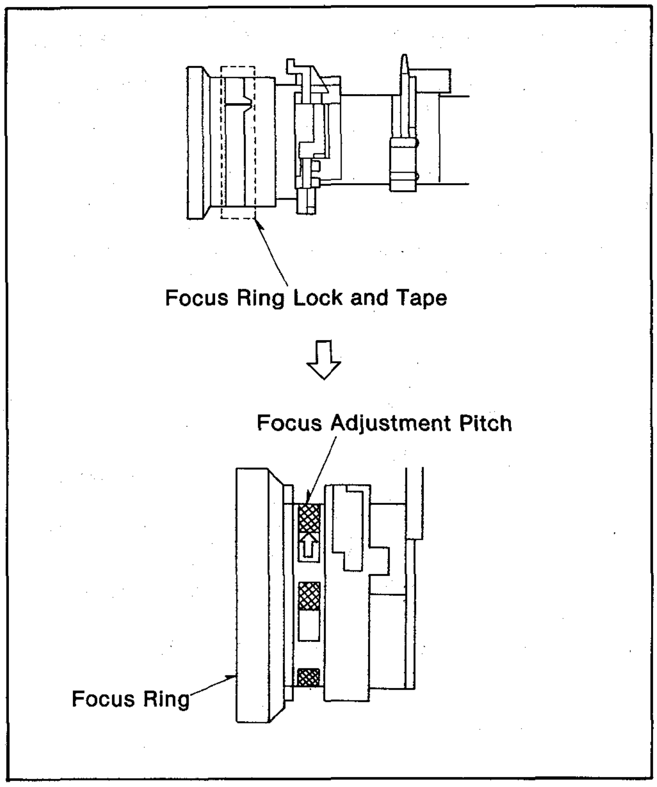

Focus Ring Lock and Tape
Focus Adjustment Pitch
Focus Ring

Fig.M2

(8). Unscrew the four screws (D) and remove the focus lens unit with iris unit.
(9). Remove the iris unit from focus lens unit and replace the focus lens unit.

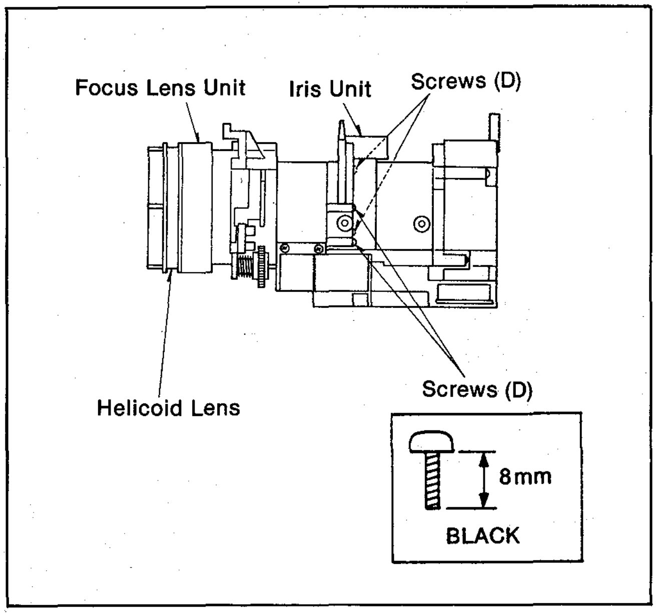

Focus Lens Unit
Iris Unit
Screws (D)
Helicoid Lens
Screws (D)
8mm
BLACK

Fig.M3

(10). After replacing the focus lens unit, install the iris unit to focus lens unit.
(11). Install the focus lens unit with iris unit and then tighten the four screws (D) as shown in Fig. M3.
(12). Adjust the helicoid lens position as follows.

a. Turn the helicoid lens to fully clockwise and return it for approx. 10mm (so that ext installation become easy) as shown in Fig.M4.

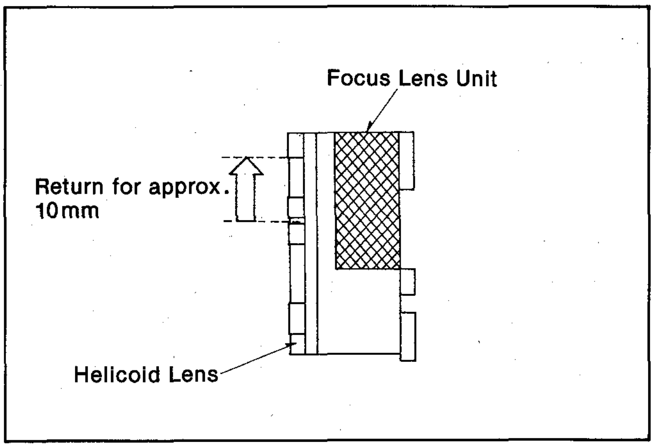

Focus Lens Unit
Return for approx. 10mm
Helicoid Lens

Fig.M4

(13). Install the focus ring so that the infinity (∞) mark on focus ring is come to red–line on focus lens unit.

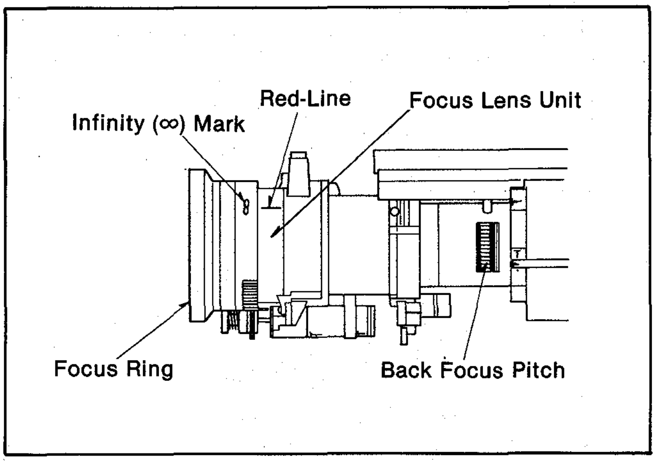

Red-Line
Focus Lens Unit
Infinity (∞) Mark
Focus Ring
Back Focus Pitch

Fig.M5

(14). Install the C.B.As (Process, Auto Focus, Sensor, Encoder) and zoom motor.

Note:
If the helicoid lens is removed, the helicoid lens is installed as following steps.

a. Match the position between helicoid lens and lens unit so that the projection on helicoid lens comes to projection on lens unit as shown in Fig. M6.

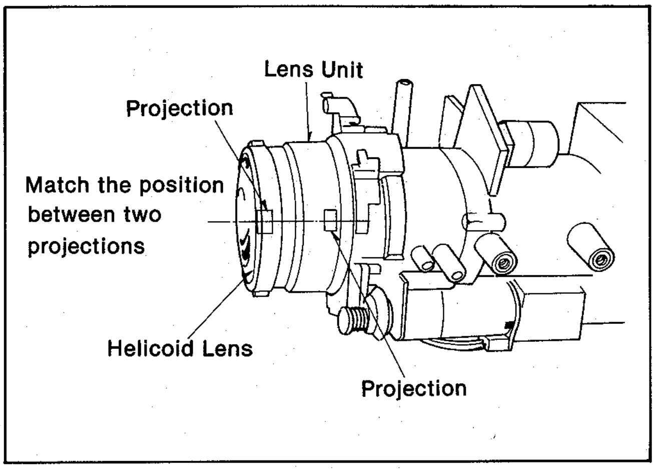


Fig.M6

b. Install the helicoid lens.

(15). Adjust the focus ring position as follows.

a. Aim the camera at the object in 3m distance from the surface of CCD unit (in 2.9m distance from focus ring).
b. Turn the zoom ring fully to "Tele" position (54mm position).
c. Adjust the focus adjustment pitch (refer to Fig. M2) to obtain the best focus and stick the tape supplied to the focus ring and the focus ring to fix the position of them.

Note:
During this adjustment, hold the focus ring so that it indicates in 3m.

d. Turn the zoom ring fully to "wide" position (9mm position).
e. Adjust the back focus pitch (refer to Fig. M5) so that the focus is obtained.
f. Repeat the procedure as follows, zoom in, focus, zoom out and adjust the back focus pitch until the best focus is obtained over the entire zoom range.

2-3-2. REPLACEMENT OF ROTARY TRANSFORMER

Reinstallation of Rotary Transformer (R) Unit

(1) Reistall the Rotary Transformer (R) Unit carefully so that the white portion of Upper Cylinder Unit is properly aligned with white portion of Rotary Transformer (R).
(2) Tighten the 2 screws (C) and solder 8 Lead Pins (B).

Reinstallation of Upper Rotary Transformer (S) Unit

(1) Befor reinstalling a Upper Rotary Transformer (S) Unit, clean the surface of Rotary transformer (R) and Rotary Transformer (S) with a soft cloth.
(2) Place the Spacer (VMX1340) on Rotary Transformer (R). Reinstall the Upper Rotary Transformer (S) Unit so that insert the shaft (VMS3504) to center of Rotary transformer (S) surely through the center of Upper Rotary transformer (R).

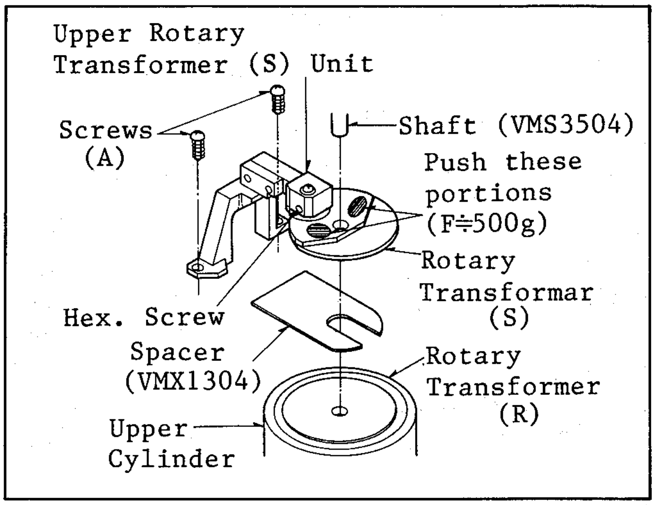


Fig.M7

(3) Tighth the 2 screws (A).
(4) Loosen the Hex. Screw (1.2mm).
(5) Push the Upper Rotary Transformer (S) C.B. (F=500g) and then remove the Shaft and tightn the Hex. Screw.
(6) Remove the spacer.

Simplifide adjustment of Upper Rotary Transformer (S) Unit

(1) Clean the surface of the Rotary Transformer (R) and (S) with a soft cloth before reinstall a Upper Rotary Transformer (S) Unit.
(2) Place a piece of paper on Rotary Transformer (R) which has the same thickness as an ordinary page of Service Manual (not cover page but the other thinner pages) cutting as follows. (The specification of this gap is between 70um ~ 100um.)
(3) Install the Rotary Transformer (S) unit so that the center portion comes to the center of Upper Cylinder Motor.
(4) Tighten the 2 Screws (A).
(5) Loosen the Hex. screw.

(6) Push the screened portions of the Rotary Transformer (S) (approx. 500g) and then tighten the Hex. screw with Hex wrench.
(7) Remove the paper which is used as spacer.
(8) Confirm that the Upper Cylinder can rotate smoothly.

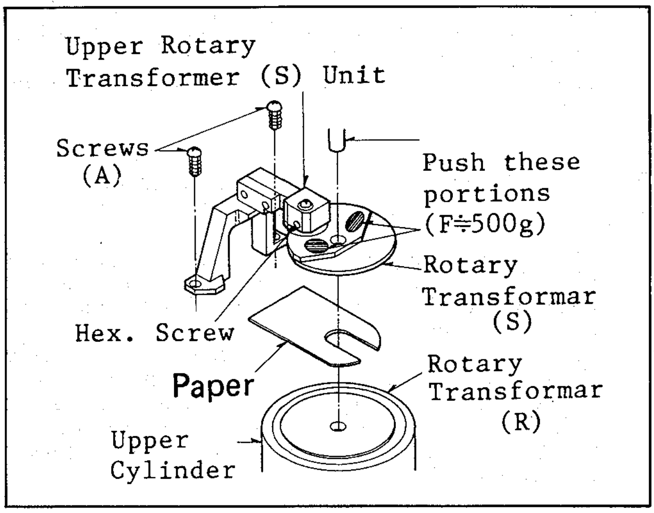

Upper Rotary Transformer (S) Unit
Screws (A)
Push these portions (F≒500g)
Rotary Transformar (S)
Hex. Screw
Paper
Rotary Transformar (R)
Upper Cylinder

Fig.M8

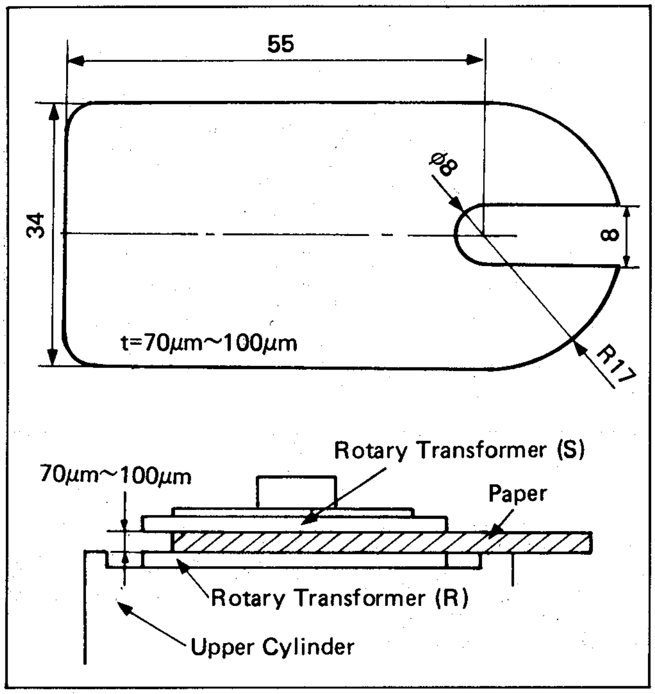

55
34
ø8
8
R17
t=70µm~100µm
70µm~100µm
Rotary Transformer (S)
Paper
Rotary Transformer (R)
Upper Cylinder

Fig.M9

Confirmation of replacement

(1) Confirm the rotarion of Upper Cylinder Unit. (Upper Cylinder Unit rotate smoothly.)
(2) Insert the Spacer to gap of Rotaly Trans. (It must be smoothly also gap must not be too wide.)
(3) Confirm the selfrecording and Playback picture on LP mode. (Play back picture must not noisy)
(4) If condition is no good, review the item No.6 Reinstllation of Upper Rotary Transformer (S) Unit.
(5) After confirmation, perform "TAPE INTERCHANGEABILITY ADJUSTMENT."

2-3-3. REPLACEMENT OF CAPSTAN MOTOR UNIT

(1) Ensure Unit is in the STOP mode. Remove the Capstan Belt.
(2) Unlock Flexible Cable P2603 on the Drive C.B.A.

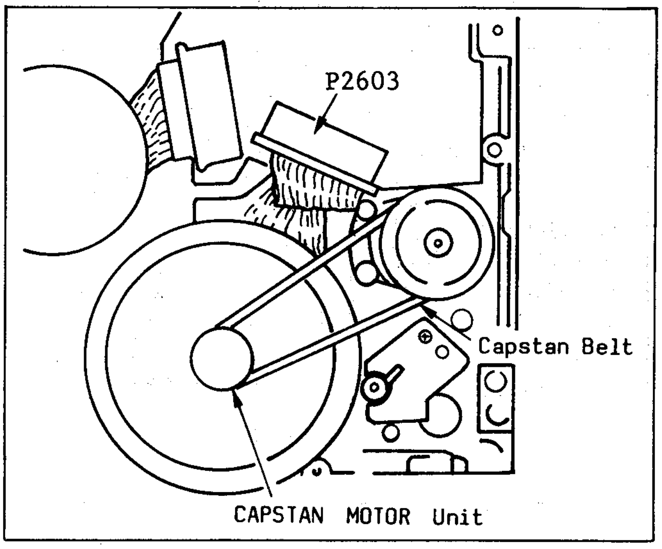

P2603
Capstan Belt
CAPSTAN MOTOR Unit

Fig.M10

(3) Remove the Cassette Up Holder. LP Head Amp, Head Amp Holder and Mode Select Switch Unit.
(4) Take out the Idler Gear while pushing on the Tape Guide Lever Unit until it clears the Idler Gear Teeth as shown in Fig. M11.

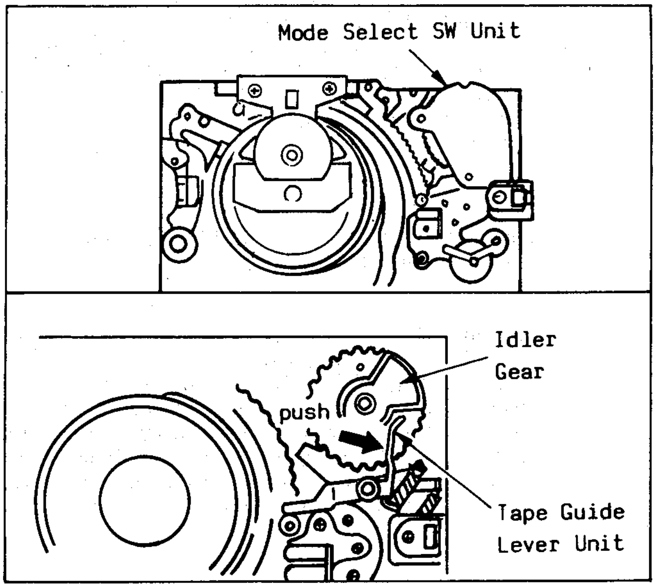

Mode Select SW Unit
Idler Gear
push
Tape Guide Lever Unit

Fig.M11

(5) Remove 2 Screws (B). Then remove Screw (C) while slightly pushing on the Sector Gear Unit to reveal Screw (C) as shown in Fig. M12. Then remove the A/C Head Base Unit.

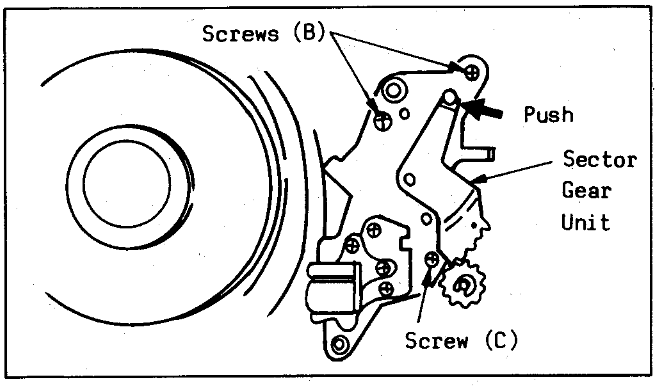

Screws (B)
Push
Sector Gear Unit
Screw (C)

Fig.M12

(6) Remove the Cut Washer and Motor Gear. Then place the Unit in play position completely by rotating Loading Idle Gear clockwise as shown in Fig. M13.

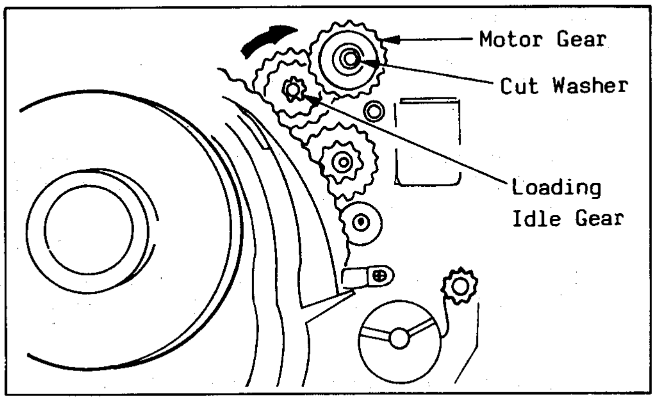

Motor Gear
Cut Washer
Loading Idle Gear

Fig.M13

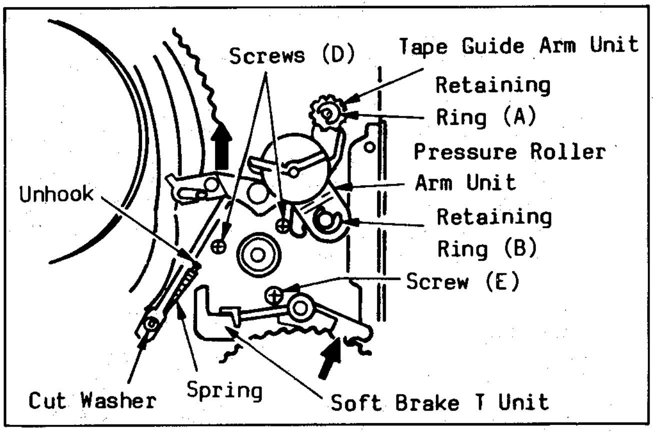

Screws (D)
Tape Guide Arm Unit
Retaining Ring (A)
Pressure Roller Arm Unit
Retaining Ring (B)
Screw (E)
Unhook
Cut Washer
Spring
Soft Brake T Unit

Fig.M14

(7) Remove Retaining Ring (A) and Tape Guide Arm Unit by pushing it in the direction shown by arrow and lifting it off its Post.
(8) Remove the Cut Washer and unhook the Spring.
(9) Remove Retaining Ring (B) and Pressure Roller Arm Unit.
(10) Refer to the Disassembly/Assembly and Adjustment Procedures of Mechanism. Use steps 3, 4 and 5 to remove the Takeup Reel Gear, Clutch Gear Unit and Soft Brake T Unit.
(11) Remove 2 Screws (D) and Screw (E) while pushing slightly on the Soft Brake T Unit.Then remove the Capstan Stator Unit from Bottom Side.
(12) Replace the new Capstan Motor Unit and then tighten 2 Screws (D) and Screw (E).

Adjustment of FG Head Gap

* Specification: .... 0.1~0.15mm
(1) Slightly loosen the 2 screws.
(2) Put the paper which is used for cover page of this volume into the gap between F.G.Head and Capstan rotor.
(3) Afer adjustment, tighten 2 screws.

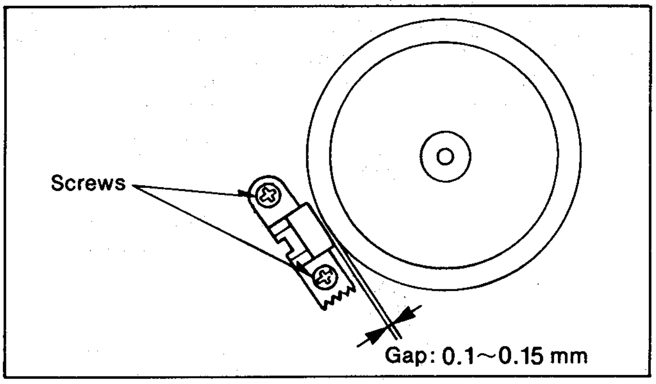

Screws
Gap: 0.1~0.15 mm

Fig. M15

Note:
Do not touch the surface of rotor and keep any magnetizable material away.

2-3-4. ADJUSTMENT OF TENSION POST POSITION

(1) Remove the Cassette Up Unit.
(2) Cover the Tape End Sensor and Cassette Up/Down Sensor with Black Tape.
(3) Push the Play button to complete loading operation sequence.
(4) As soon as loading is completed, disconnect the AC plug of AC Adaptor.
(5) Loosen Screw (F) a little bit and adjust the Tension Adjust Piece (in either direction) as indicated by the arrow so that the center of the Tension Post is 1mm to the left of the center of the S1 Post as shown in Fig. M16. Tighten Screw (F) to secure it.

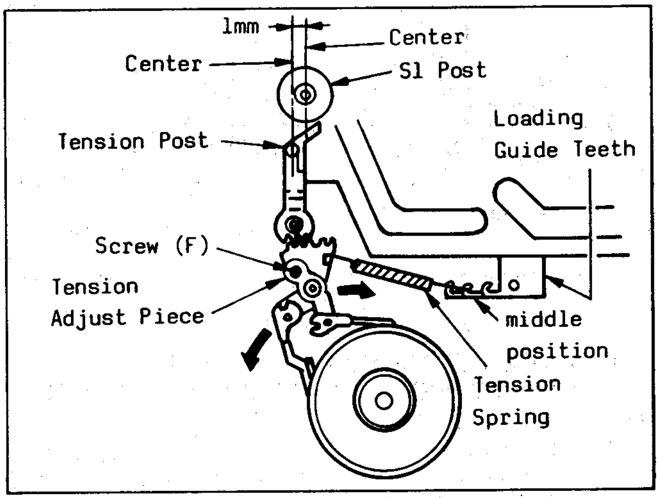

1mm
Center
Center
S1 Post
Loading Guide Teeth
Tension Post
Screw (F)
Tension Adjust Piece
middle position
Tension Spring

Fig. M16

Note:
After this adjustment, reposition Tension Spring on Loading Guide Teeth to middle position as a Back Tension Adjustment as shown in Fig. M16.

2-3-5. HEIGHT ADJUSTMENT OF TAPE GUIDE POST (PRELIMINARY ADJUSTMENT)

Height adjustment of S1 Post

* Specification: .... 14.72+–0.1mm

(1) For adjustment of S1 post height, turn 4mm Nut (A) slightly in either direction as necessary to the correct clearance between the upper edge of the lower tape guide on S1 Post and the lower portion of Cassette Stand S Unit.

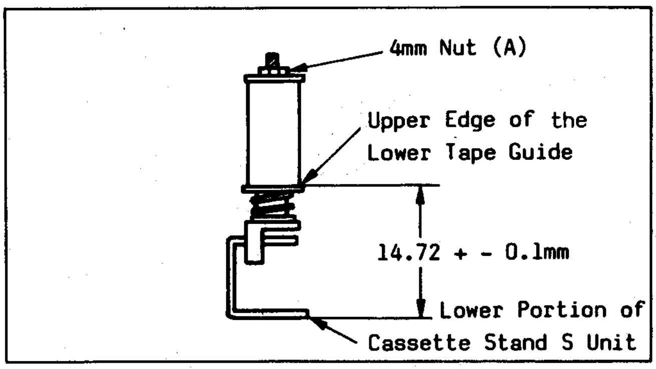

4mm Nut (A)
Upper Edge of the Lower Tape Guide
14.72 + - 0.1mm
Lower Portion of Cassette Stand S Unit

Fig. M17

Height adjustment of S2 and T1 Posts

* Specification:
S2 Post .... 0.56+–0.1mm
T1 Post .... 0.74+–0.1mm

(1) For adjustment of S2 and T1 post height, loosen the Black Lock Screw located on the lower portion of Posts (S2 & T1) using the Lock Screwdriver .

(2) Turn top of post with Hex. Wrench (1.5mm) slightly in either direction as necessary to the correct clearance as shown in Fig. M18.

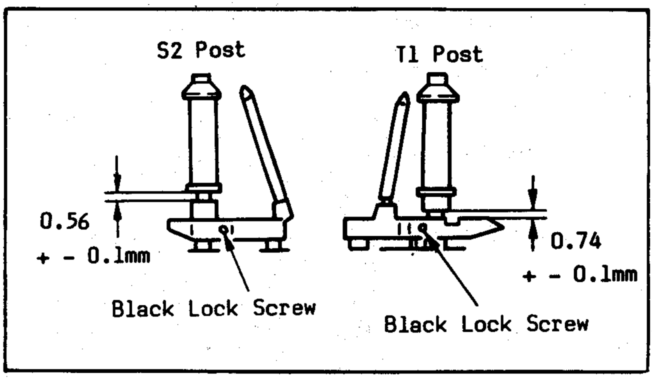

S2 Post
T1 Post
0.56
+ - 0.1mm
0.74
+ - 0.1mm
Black Lock Screw
Black Lock Screw

Fig. M18

2-3-6. TAPE INTERCHANGEABILITY ADJUSTMENT (FINAL ADJUSTMENT)

Note:

1) To perform these adjustment/confirmation procedures, make sure that the Tracking Control is set in the fixed (neutral) positionby pushing both of the Tracking Control Up/Down Switches, on the Main C.B.A., in at the same time.
2) Before these adjustment/confirmation procedures, remove the cassette protective Tape Cover from a Cassette Tape or the Alignment Tape (VFM8180H8PF).

* Equipment Required:
Dual Trace Oscilloscope
Alignment Tape .... (VFM8180H8PF)
Hex. Wrench (1.5mm)

1. Confirmation of Tape Travel

(1) Play back a cassette tape and confirm that the tape travels without curling at the upper and lower guides on Posts S2 and T1.

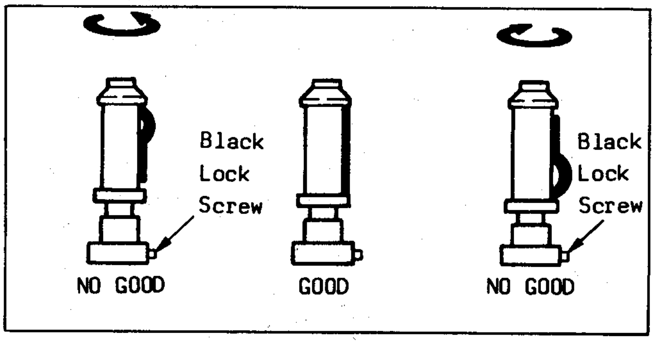

Black Lock Screw
NO GOOD
GOOD
Black Lock Screw
NO GOOD

Fig. M19

(2) If curling is apparent, adjust the height of posts by turning the top of Post with Hex. Wrench. (for S2 and T1)

Note:
Before turning S2 and T1, slightly loosen the Black Lock Screw using the Lock Screwdriver.

2. Confirmation of A/C Head

This confirmation is required when the A/C Head or Capstan Motor is replaced and for a preliminary height adjustment.
For final adjustment, perform items 3 and 4.

(1) Looking at the lower edge of the Control Head with the tape in motion, ensure that the lower edge of the tape runs 0.25mm above the lower edge of the Control Head. If it doesn't, turn Black Screw (A) slightly in either direction as necessary to correct it. Turn clockwise to lower the head and counterclockwise to raise it.

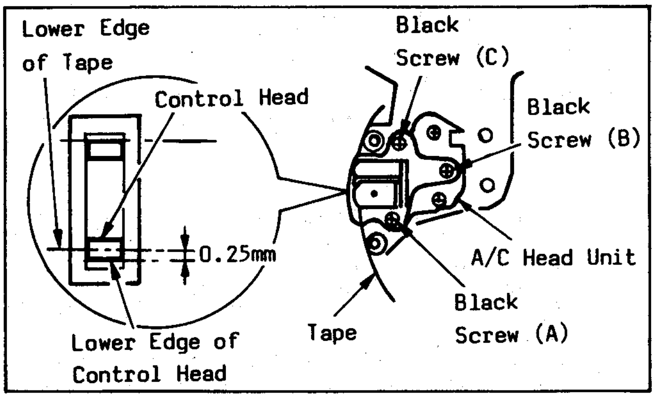

Lower Edge of Tape
Black Screw (C)
Control Head
Black Screw (B)
0.25mm
A/C Head Unit
Black Screw (A)
Tape
Lower Edge of Control Head

Fig. M20

3. Confirmation of Tilt of A/C Head

(1) Play back a cassette tape and confirm that the tape runs properly between lower and upper limits of T3 Post. Also confirm that the tape is running smoothly.

(2) If adjustment is required, turn Black Screw (B), in Fig. M20, counterclockwise until curling is apparent at lower edge of T3 Post. Then turn Black Screw (B) clockwise until the curling smoothes out.

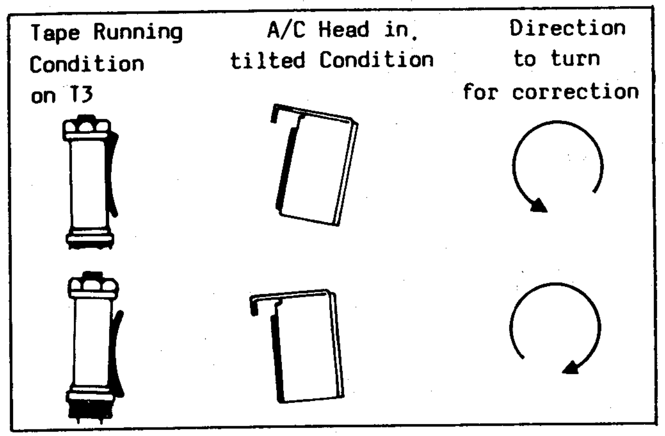

Tape Running Condition on T3
A/C Head in, tilted Condition
Direction to turn for correction

Fig. M21

4. Height and Azimuth Adjustment of A/C Head

(1) Connect the oscilloscope to TP4001 on the Main C.B.A.

(2) Play back the Monoscope portion (6KHz, Mono) of the Alignment Tape.

(3) Adjust Black Screw (C) on the A/C Head Base in Fig. M20 so that the output level is at a maximum.

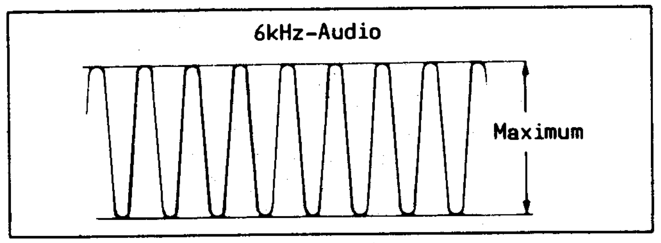

6kHz-Audio
Maximum

Fig. M22

(4) Readjust Black Screw (A) shown in Fig. M20 for maximum output.

(5) Disconnect the oscilloscope.

5. Horizontal Position Adjustment of A/C Head

(1) Set the tracking control to the fixed (neutral) position by pushing both of the tracking control Up/Down Switches, on the Main C.B.A., in at the same time. Connect the oscilloscope to TP3501 on the Main C.B.A. Use TP2001 as a trigger.

(2) Play back the monoscope portion of the Alignment Tape and confirm that RF envelope appears, as in Fig. M24.

(3) If adjustment is required, loosen 2 Black Screws (D) and then slowly move the A/C Haed Base back and forth using a screwdriver so that the envelope is at a maximum.

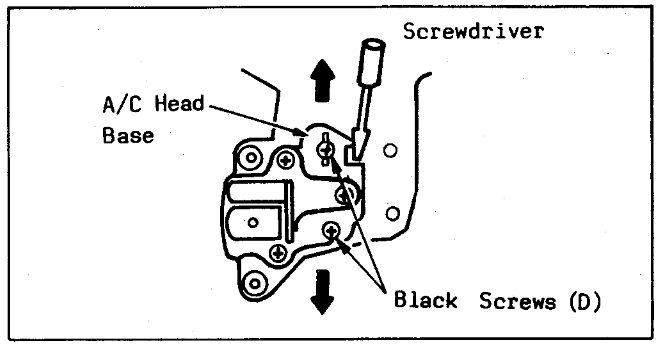

Screwdriver
A/C Head Base
Black Screws (D)

Fig. M23

(4) Confirmation of the correct adjustment can be made by alternately pushing the Tracking Control Up/Down Switches, on the Main C.B.A. to check the symmetry of the envelope.

(5) Trghten 2 Black Screws (D).

(6) Reconfirm the symmetry of the envelope. If it has changed, repeat steps (3) ~ (5).

6. Confirmation/Adjustment of Envelope Output

(1) Set the tracking control to the fixed (neutral) position by pushing both of the tracking control Up/Down Switches, on the Main C.B.A., in at the same time. Connect the oscilloscope to TP3501 on the Main C.B.A. Use TP2001 as a trigger.

(2) Playback the Monoscope portion of the Alignment Tape and adjust the height of posts S2 and T1 watching the scope display so that the envelope becomes as flat as possible. (V1/V−max >= 0.7, V2/V−max >= 0.8)
If adjustment is required, turn top of post with Hex. Wrench (1.5mm). For adjustment of S2 and T1, refer to Item 1 and it's Note.

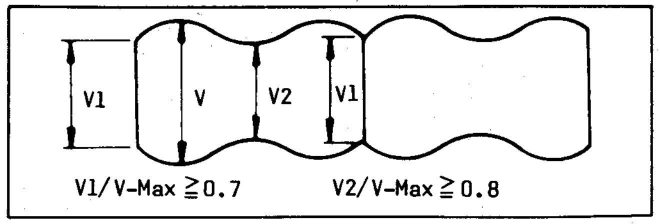

V1
V
V2
V1
V1/V-Max ≧ 0.7
V2/V-Max ≧ 0.8

Fig. M24

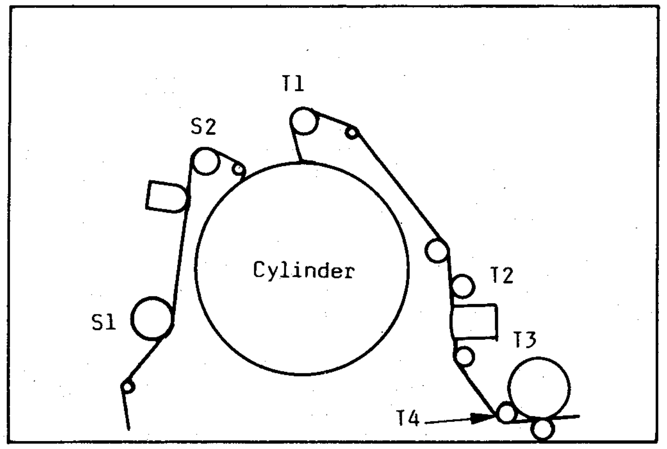

T1
S2
Cylinder
T2
S1
T3
T4

Fig. M25-1

(3) When the scope display is as shown in Fig. M25-2, adjust the height of S2 so that the waveform looks like Fig. M25-4.

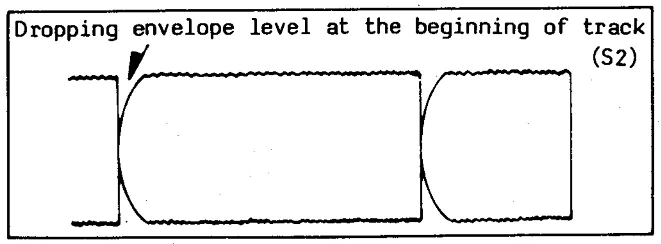

Dropping envelope level at the beginning of track (S2)

Fig. M25-2

(4) When the scope display is as shown in Fig. M25-3, adjust the height of T1 so that the waveform looks like Fig. M25-4.

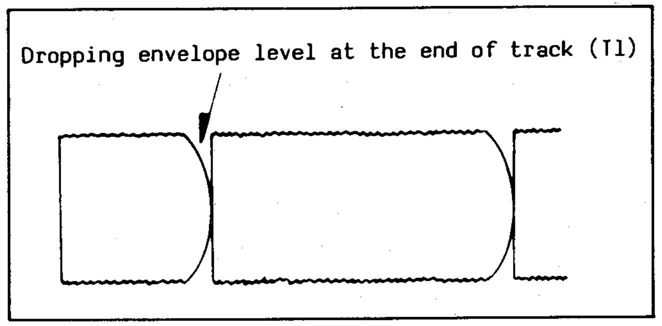

Dropping envelope level at the end of track (T1)

Fig. M25-3

(5) The scope display should appear as shown in Fig. M25-4 when S2 and T1 Posts are adjusted properly.

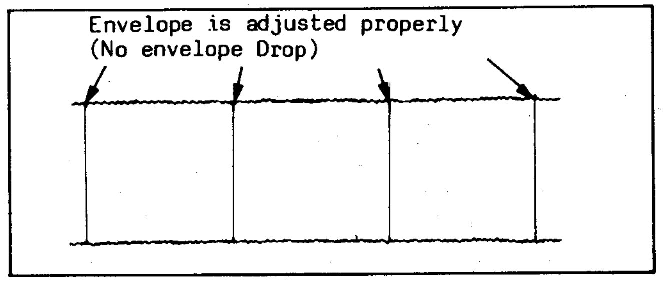

Envelope is adjusted properly
(No envelope Drop)

Fig. M25-4

Note:

1) Upon completion of adjustment of S2 and T1, tighten the Black Lock Screw on S2 and T1 using Lock Screwdriver. Then confirm the Horizontal Position of A/C Head by pushing the Tracking Control Up or Down switches on the Main C.B.A. alternately to check the symmetry of the envelope. And if required, perform "Horizontal Position Adjustment of A/C Head".

2) After these adjustment/confirmation procedures, replace the cassette protective Tape Cover.

2-3-7. ASSEMBLY AND ADJUSTMENT PROCEDURE OF MECHANISM

This procedure starts with the condition that the Cabinet parts and Cassette Up Unit have been removed.
When re-assembling, perform the step (s) in the reverse order.

STEP /LOC No.	START- ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE * UNHOOK/UNLOCK/RELEASE	ADJUSTMENT # CONDITION ∗ REMARKS
①	1	RT (S) UNIT D.D. CYL. UNIT	T/B	M27, 28	3 (S-0) * Connectors	* Remove the Earth Plate before Step ①
②	3	TAKEUP REEL GEAR	T	M26, 28	(C-1), (W-1) <Note 1>	(+)
③	3	CLUTCH GEAR UNIT	T	M26, 28	(C-2), (W-2) <Note 1>	(+)
④	4	SOFT BRAKE T UNIT	T	M26, 28	(C-3), * (P-1) <Note 1>	(+)
⑤	6	HEAD AMP ANGLE	T	M29	2 (S-2), (S-3) * Connector	* Remove the LP Head amp Unit before Step ⑤.
⑥	6	MODE SELECT SWITCH UNIT	T	M26, 29	(S-3) * Connector	Align the Punch Mark with the Notch. # STOP MODE
⑦	6	TAPE GUIDE LEVER UNIT	T	M26, 29	(C-4), * (P-2) <Note 1>	See, Hooking Position.
⑧	7	IDLER GEAR	T	M26, 30	------------------------------	(+) Align the Notch with the Shaft of Loading Idle Gear. # STOP MODE
⑨	8	SECTOR GEAR UNIT	T	M26, 30	------------------------------	(+) Align the Hole with the Notch. # STOP MODE
⑩	9	A/C HEAD BASE UNIT	T	M26, 30	3 (S-4)	<Note 2>
⑪	10	MOTOR GEAR	T	M26, 31	(C-5) <Note 1>	(+) # STOP MODE (Fig. M31)
⑫	11, 10	LOADING MOTOR UNIT	T	M31	2 (S-5)	<Note 2>
⑬	10	TAPE GUIDE LEVER UNIT	T	M26, 31	(R-1), * (P-3)	See, Hooking Position.
⑭	14	TENSION ARM UNIT	T	M26, 32	(C-6), (W-3) <Note 1>	(+) See, Adjustment of Tension Post Position.Align the Punch Mark with the Notch. #Loading
⑮	15	SUPPLY REEL TABLE UNIT	T	M26, 32	(C-7), (W-4) <Note 1>	(+)
⑯	15	TENSION BAND ARM UNIT	T	M26, 32	(C-8), * (P-4) <Note 1>	(+)
⑰	16, 14	CASSETTE STAND S ASS'Y	T	M26, 33	2 (S-6), * Connector	(+) <Note 2>
⑱	18	SHIELD COVER	B	M27	(S-7)	
⑲	18,11, 10,2	LOADING GUIDE ASS'Y	T	M26,34	6(S-8), *(L-1), *Connector	(+) <Note 2> <Note 3> # Loading
⑳	19	TAKEUP SHAFT HOLDER ASS'Y	T	M26	(C-9)	(+) <Note 1>
㉑	19	SUPPLY SHAFT HOLDER ASS'Y	T	M26	--------------	(+)
㉒	19	V STOPPER BASE ASS'Y	T	M26	2(S-9)	
㉓	19,13	PRESSURE ROLLER ARM UNIT	T	M26, M35	(R-2),(C-10), *(P-5), <Note 1>	(+) See, Hooking Condition.
㉔	23,5	CAPSTAN MOTOR UNIT	T	M26,27, M35	*Capstan Belt, 3(S-10), *Connector	<Note 2> See, Replacement of Capstan Motor Unit.
㉕	4	CASSETTE STAND-T	T	M26, M35	2(S-11)	(+) <Note 2>
㉖	19	RING GUIDE 1	T	M36	(S-12)	See, setting condition.
㉗	19	RING GUIDE 3	T	M36	(S-13)	See, setting condition.
㉘	27,26, 21,20	LOADING RING S UNIT	T	M26, M36	---------------	(+) Align the Hole with punch Mark.
㉙	28	LOADING DRIVE GEAR-T	T	M36	(C-11) <Note 1>	(+)
㉚	28	RING GUIDE GEAR-S (2 USED)	T	M36	--------------	-------------- White Color Gear
㉛	31	RING LIMITER	T	M26,37	(S-14)	
㉜	28	LOADING RING T UNIT	T	M36, M37	---------------	See, setting Condition. Align the Punch Mark with the Notch.
㉝	31	LOADING IDLE GEAR	T	M26,37	---------------	(+) Align the Punch Mark with the Notch.
㉞	32,28, 19	RING GUIDE GEAR-T (2 USED)	T	M37	---------------	(+) Black Color Gear # STOP MODE
㉟	10	LOADING DRIVE GEAR-S	T	M36, M37	(C-12) <Note 1>	(+)
㊱	33,32, 30,28	RING GUIDE-2	T	M36, M37	(S-15)	
㊲	32,28,22, 19,17	LOADING GUIDE-S UNIT	T	M38	3(S-16)	<Note 2>

List of Abbreviations:
T = Top, B = Bottom,
(R-1) = Retaining Ring (R-1); (P-1) = Spring (P-1); (S-1) = Screw (S-1);
(W-1) = Washer (W-1); 2(S-2) = 2 Screws (S-2); (C-1) = Cut Washer (C-1);
(L-1) = Locking Tab (L-1)
(+) = Refer to Exploded Views for Lubrication information

TOP VIEW

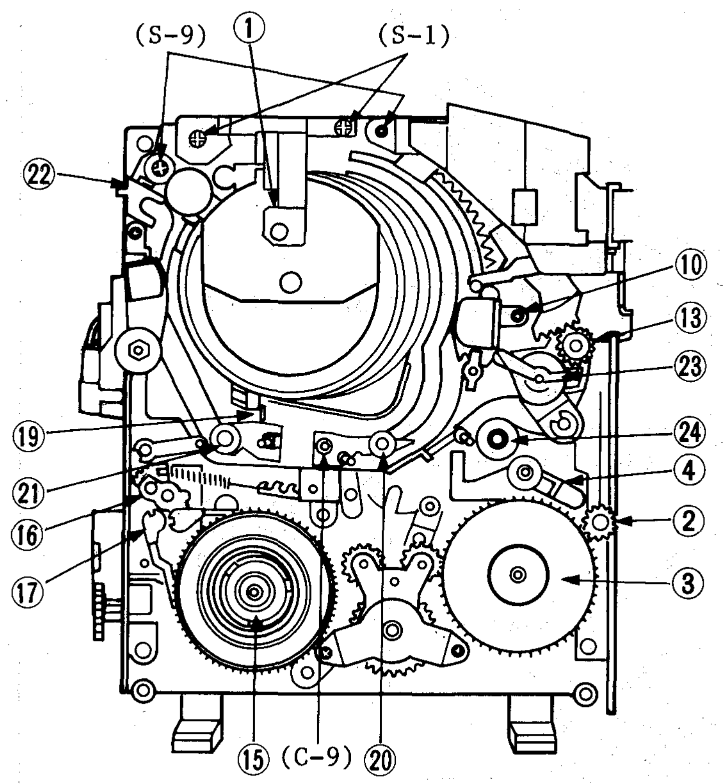

(S-9)
①
(S-1)
㉒
⑩
⑬
㉓
⑲
㉔
㉑
④
⑯
②
⑰
③
⑮
(C-9)
⑳

Fig. M26

BOTTOM VIEW

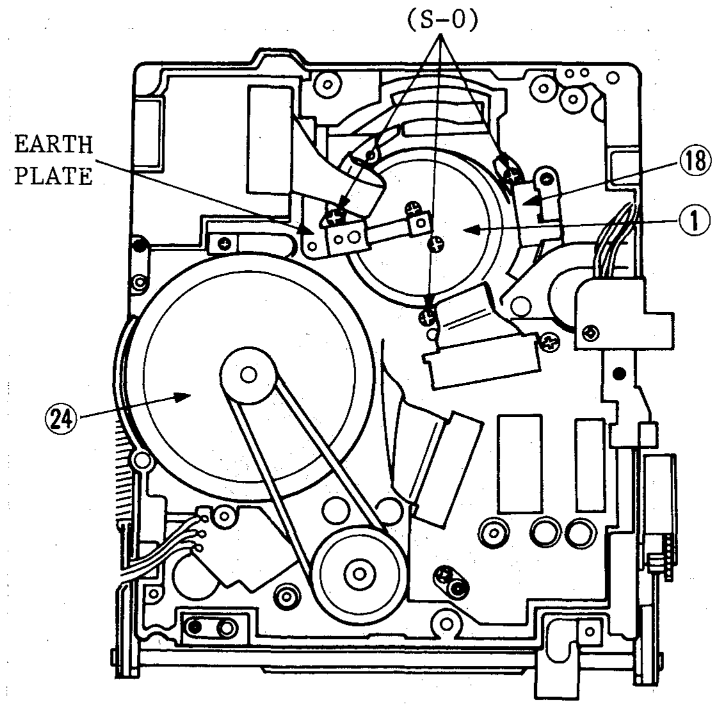

(S-0)
EARTH
PLATE
⑱
①
㉔

Fig. M27

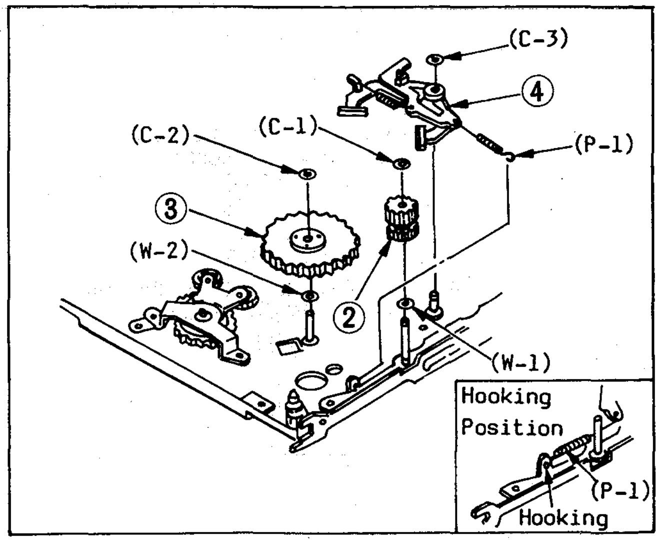

(C-3)
④
(C-2)
(C-1)
(P-1)
③
(W-2)
②
(W-1)
Hooking
Position
(P-1)
Hooking

Fig. M28

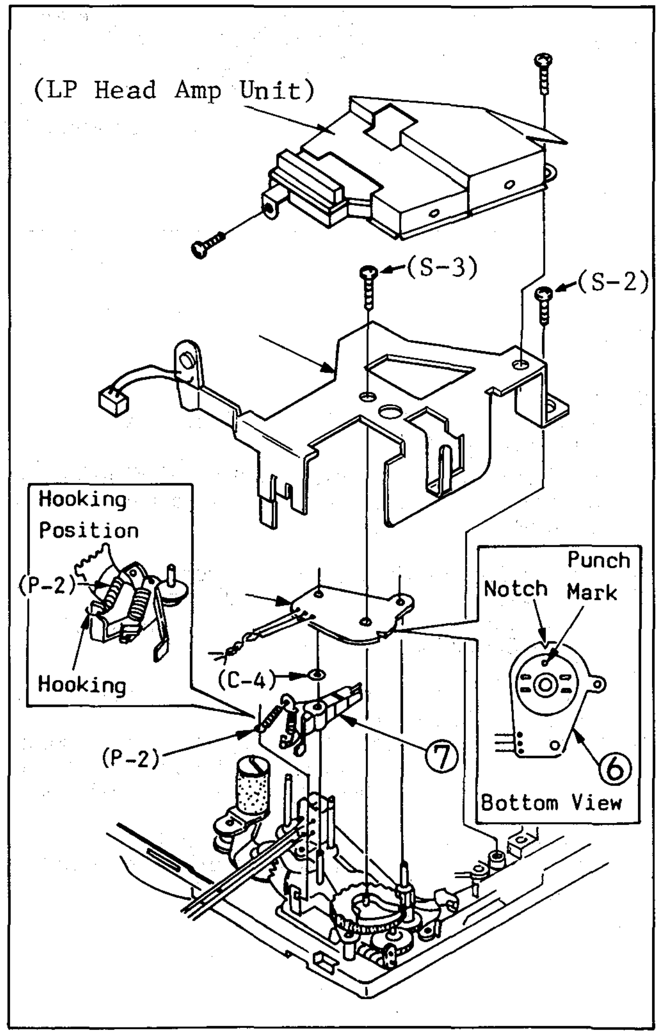

(LP Head Amp Unit)
(S-3)
(S-2)
Hooking
Position
(P-2)
Hooking
(C-4)
(P-2)
⑦
Notch
Punch
Mark
⑥
Bottom View

Fig. M29

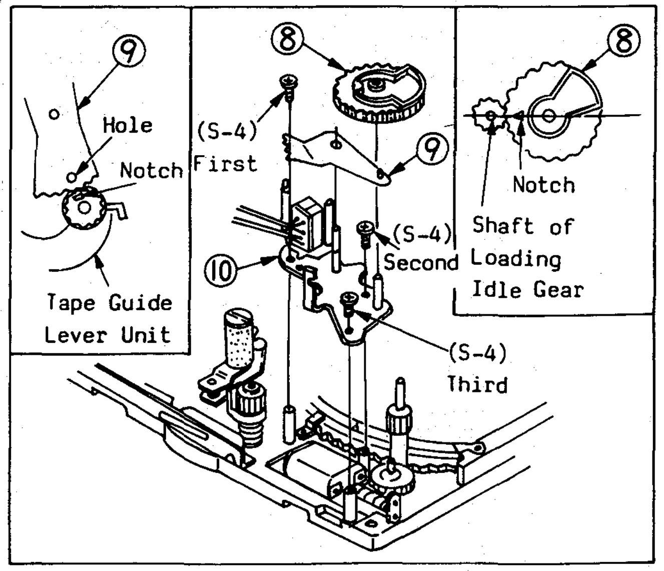
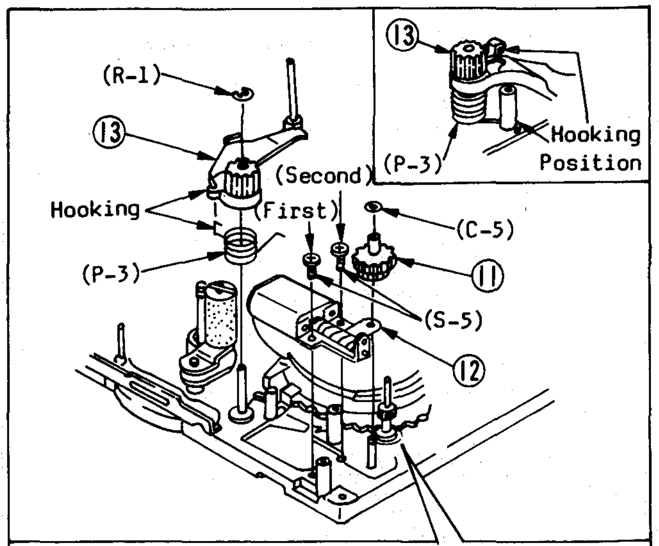

⑨
Hole
Notch
Tape Guide
Lever Unit
⑧
(S-4)
First
⑨
⑩
(S-4)
Second
(S-4)
Third
⑧
⑨
Notch
Shaft of
Loading
Idle Gear

Fig. M30


(R-1)
⑬
Hooking
(P-3)
(Second)
(First)
(C-5)
⑪
(S-5)
⑫
⑬
(P-3)
Hooking
Position

Align the hole of Gear with the hole in chassis.

▨ ▨ Loading Drive Gear S

▨ ▨ Chassis

Fig. M31

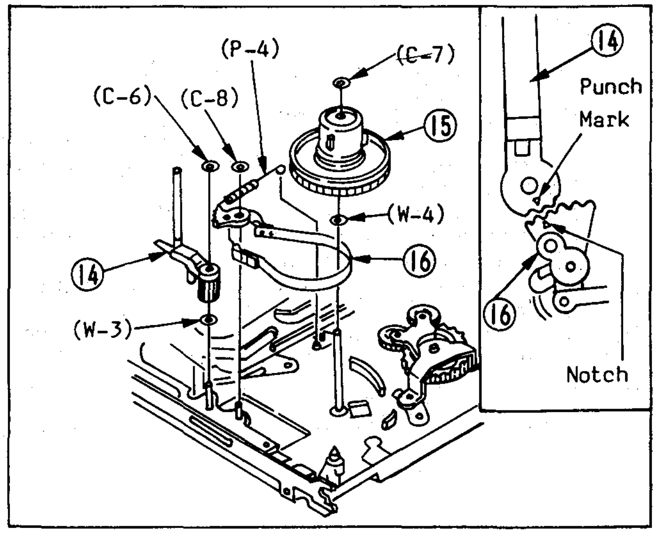

(P-4)
(C-7)
(C-6)
(C-8)
⑮
(W-4)
⑯
⑭
(W-3)
⑭
Punch
Mark
⑯
Notch

Fig. M32

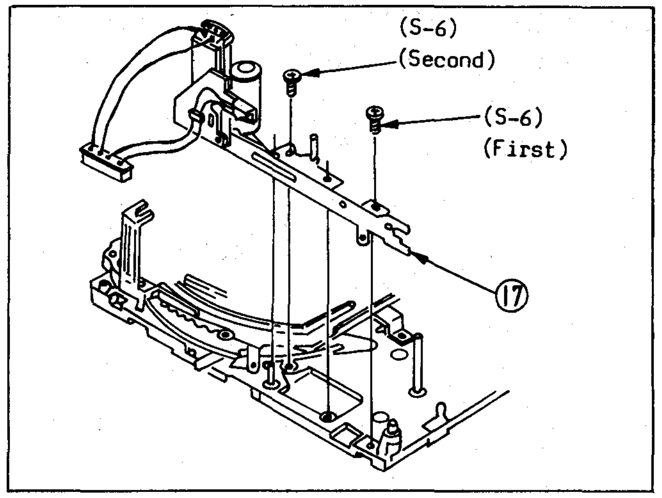

(S-6)
(Second)
(S-6)
(First)
⑰

Fig. M33

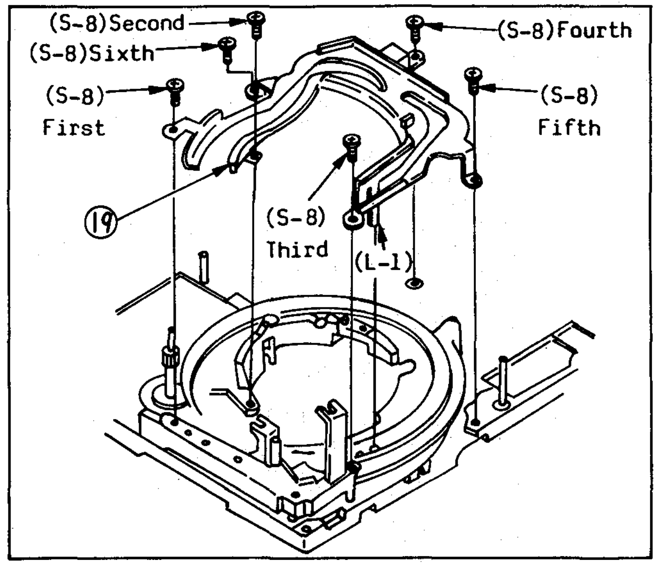

(S-8)Second
(S-8)Sixth
(S-8)
First
(S-8)Fourth
(S-8)
Fifth
⑲
(S-8)
Third
(L-1)

Fig. M34

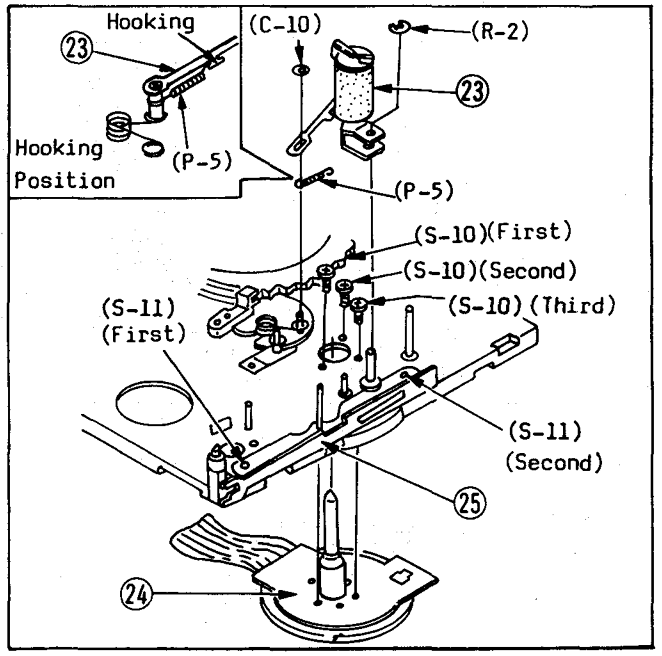
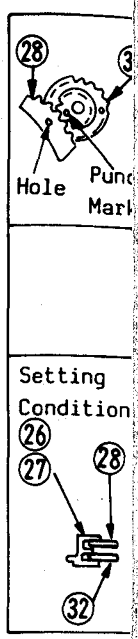
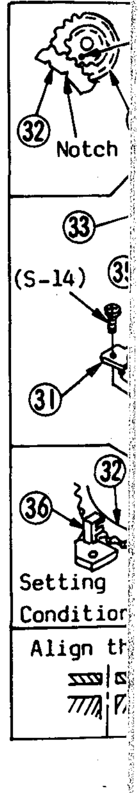
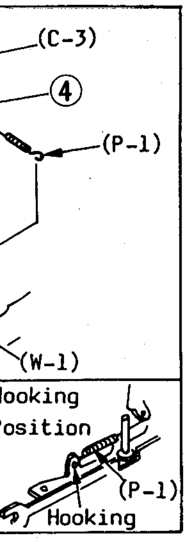
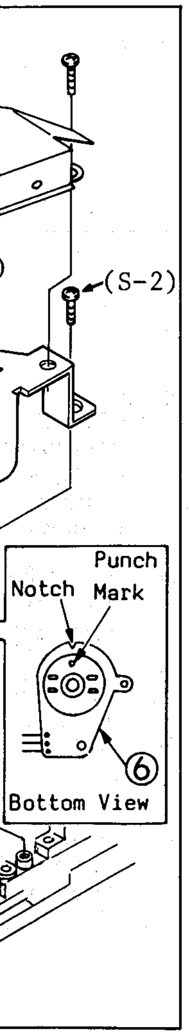

Hooking
㉓
Hooking
Position
(P-5)
(C-10)
(R-2)
㉓
(P-5)
(S-10)(First)
(S-10)(Second)
(S-10)(Third)
(S-11)
(First)
(S-11)
(Second)
㉕
㉔

Fig. M35


㉘
Hole
Setting
Condition
㉖
㉗
㉘
㉜


㉜
Notch
㉝
(S-14)
㉛
㊱
㉜
Setting


(C-3)
④
(P-1)
(W-1)
ooking
osition
(P-1)
Hooking


(S-2)
Punch
Notch
Mark
⑥
Bottom View

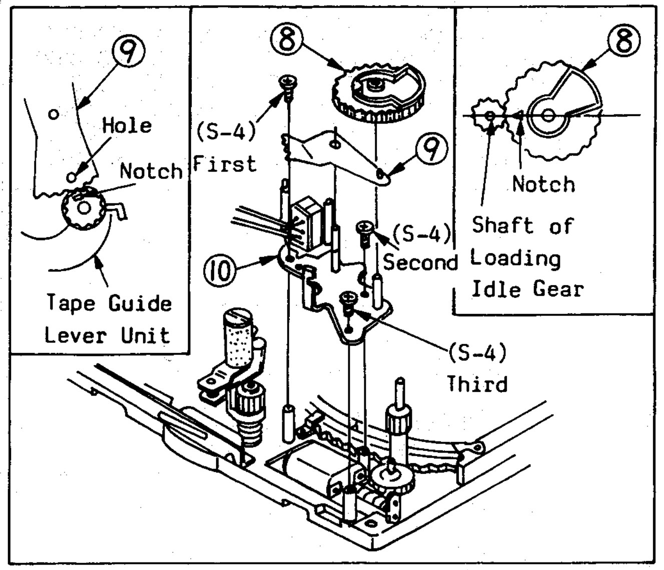
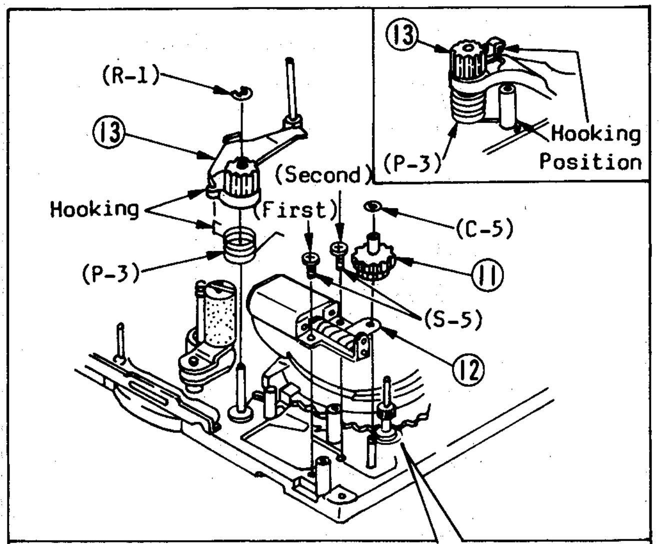

⑨
Hole
Notch
Tape Guide
Lever Unit
⑧
(S-4)
First
⑨
(S-4)
Second
⑩
(S-4)
Third
⑧
Notch
Shaft of
Loading
Idle Gear

Fig. M30


(R-1)
⑬
Hooking
(P-3)
(Second)
(First)
(C-5)
⑪
(S-5)
⑫
⑬
(P-3)
Hooking
Position

Align the hole of Gear with the hole in chassis.

▨ Loading Drive Gear S

▨ Chassis

Fig. M31

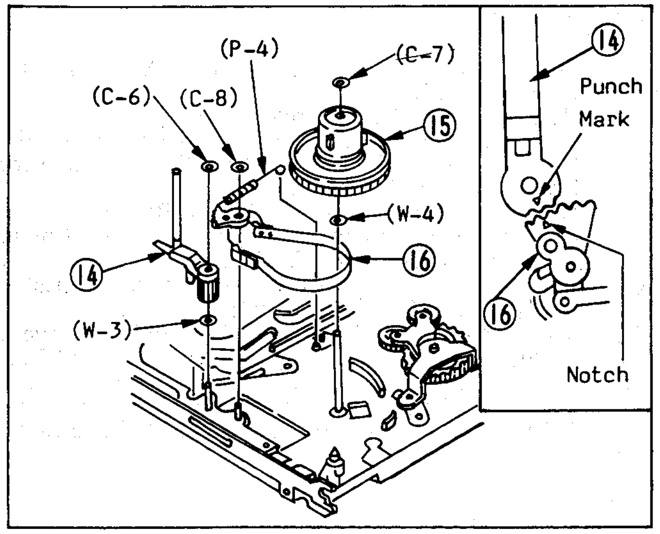

(P-4)
(C-7)
(C-6)
(C-8)
⑮
(W-4)
⑯
⑭
(W-3)
⑭
Punch
Mark
⑯
Notch

Fig. M32

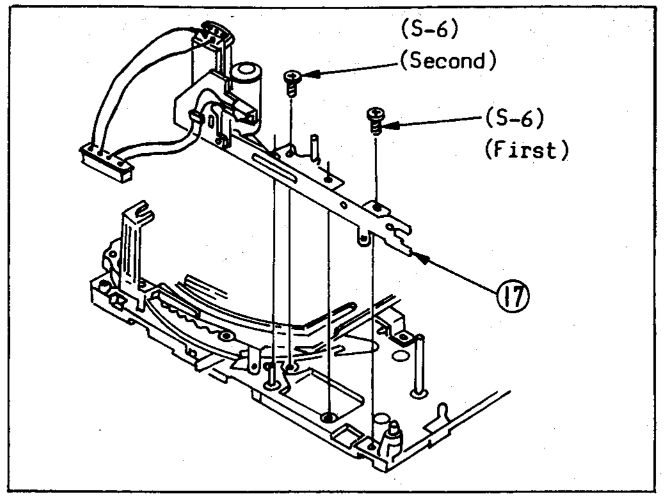

(S-6)
(Second)
(S-6)
(First)
⑰

Fig. M33

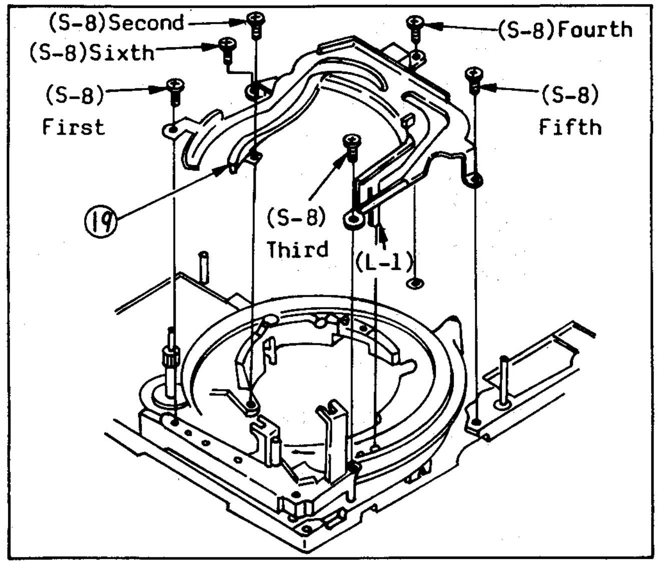

(S-8)Second
(S-8)Sixth
(S-8)Fourth
(S-8)
First
(S-8)
Fifth
⑲
(S-8)
Third
(L-1)

Fig. M34

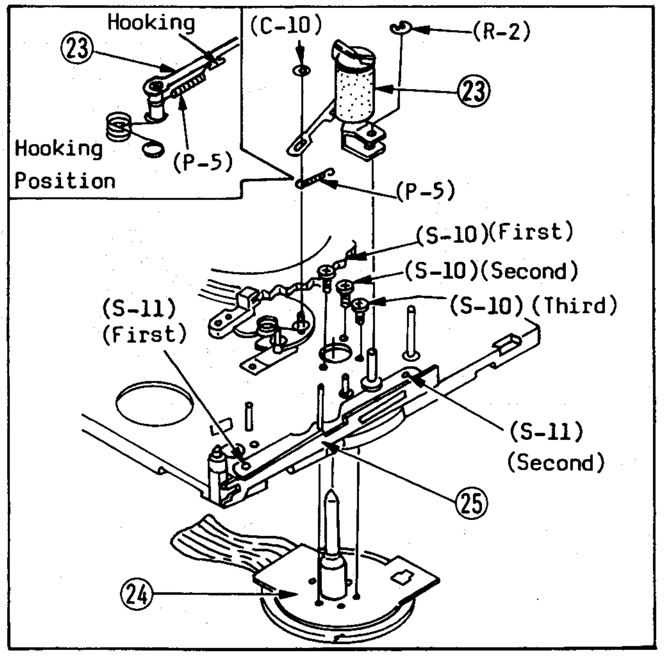

Hooking
㉓
Hooking
Position
(P-5)
(C-10)
(R-2)
㉓
(P-5)
(S-10)(First)
(S-10)(Second)
(S-10)(Third)
(S-11)
(First)
(S-11)
(Second)
㉕
㉔

Fig. M35

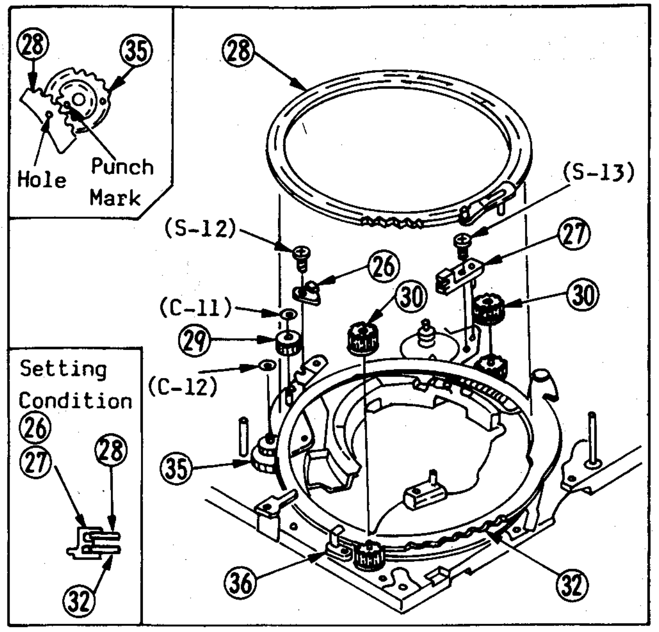
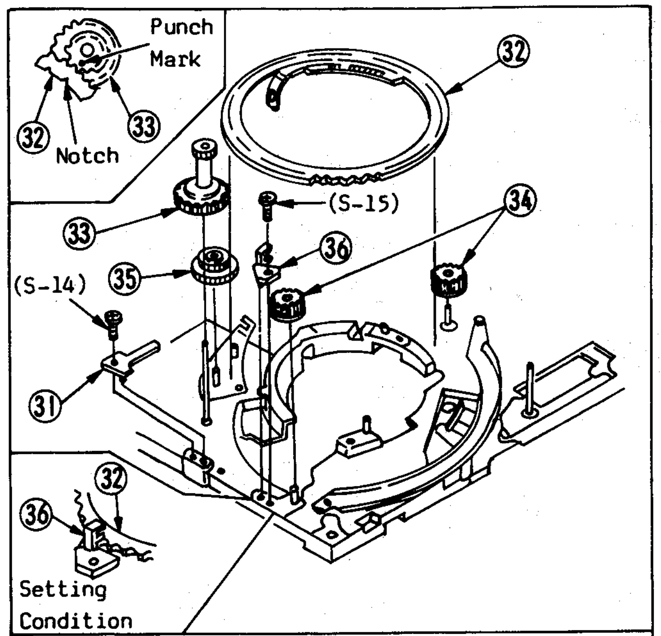

㉘
㉟
Hole
Punch
Mark
㉘
(S-13)
(S-12)
㉗
㉖
㉚
㉚
(C-11)
㉙
Setting
Condition
㉖
㉗
㉘
㉜
(C-12)
㉟
㊱
㉜

Fig. M36


Punch
Mark
㉜
㉝
Notch
㉜
(S-15)
㉞
㉝
㊱
(S-14)
㉟
㉛
㉜
㊱
Setting
Condition

Align the hole of Gear with the hole in chassis.

▨ ㉝,㉟

▨ Chassis

Fig. M37

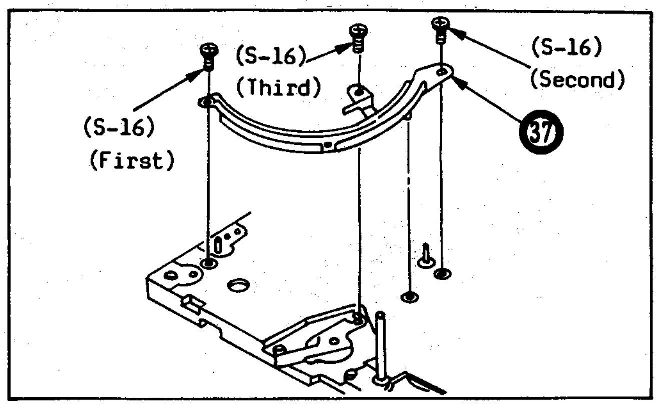
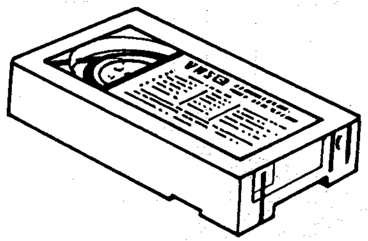
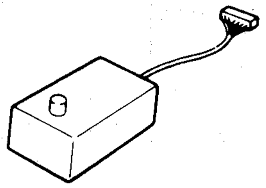
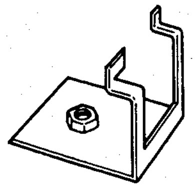
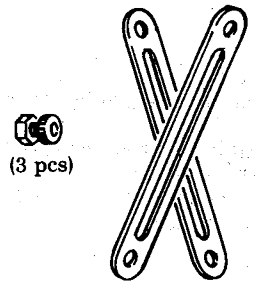
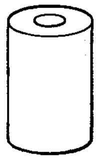
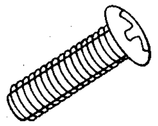

(S-16)
(Third)
(S-16)
(Second)
(S-16)
(First)
㊲

Fig. M38

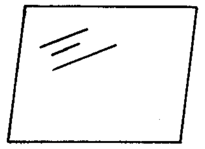
Reference's <Notes> in Table 7 :

1. This Cut Washer is not reusable. If removed, install a new one.
2. In each figure, tighten the screws in the order indicated in the diagram.
3. Remove the shield cover over the PG Pickup to allow the release of (L–1).

Service Fixtures & Tools

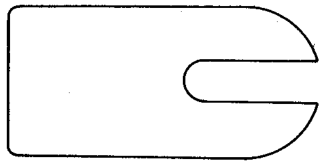
VFM8180H8PF **VHS-C Alignment Tape** 	**VFK0304** **Y/C Separator** 	**VFK0382** **CAMERA HOLDER** 
VFK0431 **Camera Holder Arm** 	**VFK0432** **Holder Spacer** 	**XSN26+18** **Screw** 

VFK0374 (C12)
VFK0375 (C2)
VFK0547 (C8)

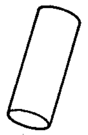


Colour Temperature Conversion Filter

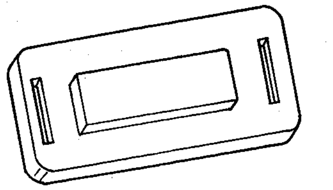
VMX1304 **Clearance Spacer**



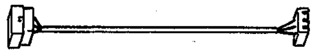
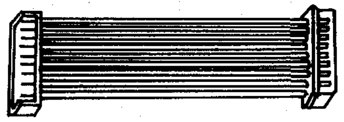
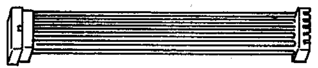
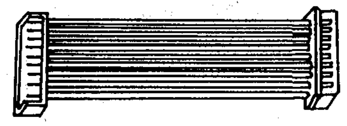
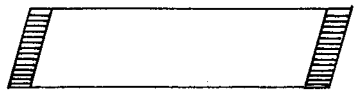
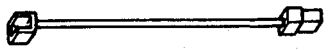
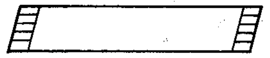
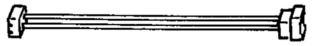
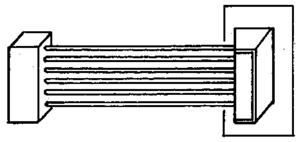
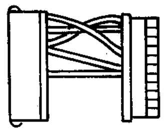
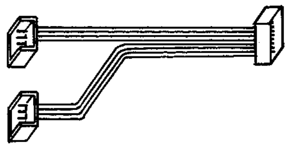
VMS3504 **Alignment Shaft**



VKM1049 **Diffusion Plate**



Extension Cables

Camera Section	**VTR Section**
VFKS0051 **Extension Cable (3P)** 	**VFKS0067** **Extension Cable (22P)** 
VFKS0052 **Extension Cable (6P)** 	**VFKS0075** **Extension Cable (16P)** 
VFK0430 **Extension Cable (14P)** 	**VFKS0060** **Extension Cable (2P)** 
VFK0503 **Extension Cable (5P)** 	**VFK0499** **Extension Cable (3P)** 
VFK0380 **Extension Cable (18P)** 	**VFKS0074** **Connector** 
VFK0497 **Extension Cable (6P)** 	

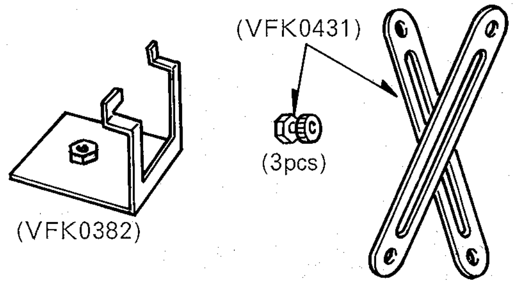
2-4. ELECTRICAL ADJUSTMENT PROCEDURES

2-4-1. ELECTRICAL ADJUSTMENT FOR CAMERA SECTION

TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the CAMERA section.

1. Oscilloscope
   Dual Trace, 50MHz, 2mV/DIV,
   10 : 1 Probe
   1 : 1 Probe
2. Digital Volt Meter or VTVM
3. Frequency Counter
4. Vectorscope
5. Light Meter
6. Tripod
7. Colour Video Monitor
8. Lighting
140 foot-candles (1400lux), on the chart surface 3200 degrees K.
9. Reflection Chart
   *Logarithmic Gray Scale Chart
   (Part No. : YWV2310RB99)
   *Colour Chip Chart
   (Part No. : YWV2100RB98)
   *Ball Chart
   (Part No. : YWV2100RB03)
   *Hunting Chart
   (Part No. : VFK0546)
   *White Chart (Card)
   (Part No. : VFK0546)
   *J Chart
   (Part No. : YWV2100RB3)
   *B/W Chart
   (Part No. : VFK0546)
   *Gray-White Chart
   (Part No. : VFK0546)
   *Colour Bar Chart
   (Part No. : VFKS003B)
10. Plastic Tip Driver
11. Camera Unit Holder
   (Part No. : VFK0382)
12. Camera Holder Arm
   (Part No. : VFK0431)



CAMERA UNIT HOLDER AND
CAMERA HOLDER ARM

Fig.C1

13. Colour temperature conversion filter
   *C12 Filter (Part NO. : VFK0374)
   *C2 Filter (Part NO. : VFK0375)
   *C8 Filter (Part NO. : VFK0547)
14. Camera Extension Cables
   *Extension Cable(3P) (Part No.:VFKS0051)
   *Extension Cable(6P) (Part No.:VFKS0052)
   *Extension Cable(14P) (Part No.:VFK0430)
   *Extension Cable(5P) (Part No.:VFK0503)
   *Extension Cable(18P) (Part No.:VFK0380)
   *Extension Cable(6P) (Part No.:VFK0497)

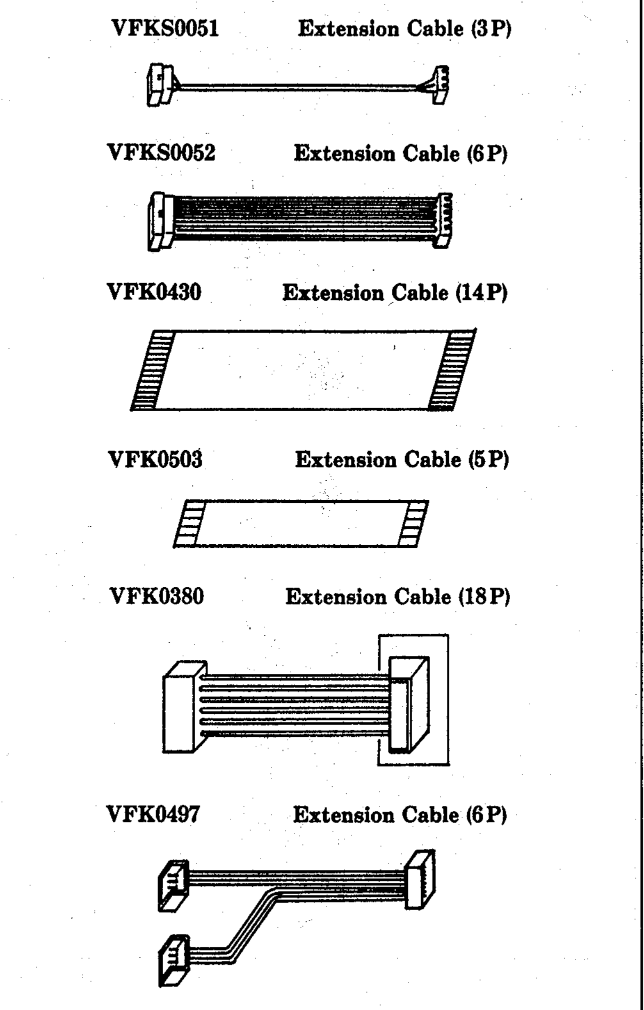

VFKS0051 Extension Cable (3P)
VFKS0052 Extension Cable (6P)
VFK0430 Extension Cable (14P)
VFK0503 Extension Cable (5P)
VFK0380 Extension Cable (18P)
VFK0497 Extension Cable (6P)

Fig.C2

PREPARATION

1). Remove the Side Case (L) and Side Case (R) from the Unit.
(Refer to the Disassembly Section.)
2). Mount the Camera Unit on the tripod using the Camera Unit Holder (VFK0382) and Camera Holder Arm (VFK0431).
3). Connect the Camera Unit, Video Recorder Unit, AC Adaptor, Camera Operation Unit and Colour Monitor TV as shown in Fig. C3.
4). Remove the flexible Cable (Which is connected between FP306 and P3504).
5). Connect the Extension cable (VFK0430) between FP306 and P3504.
6). Set the camera unit to tripod using camera holder (VFK0382) and camera holder arm (VFK0431). (refer to Technical Information).

T
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Note:
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ADJUSTME
If there i
adjustment
as follows

1) White Bala
Iris VR
Auto Focu
High Speec
2) For Trigge
To trigg
terminal F
3) Lighting —

4) Service w
performed
lens cleanli

OLDER

Screw

ble (22P)

ble (16P)

able (2P)

able (3P)

onnector

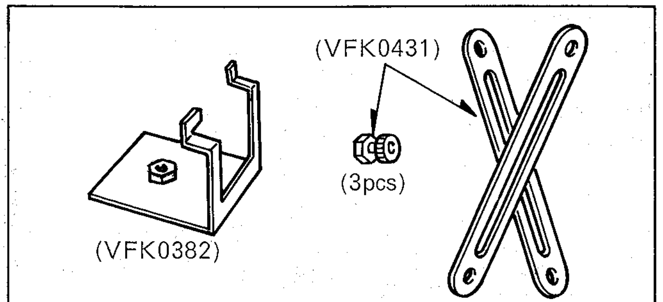
2-4. ELECTRICAL ADJUSTMENT PROCEDURES

2-4-1. ELECTRICAL ADJUSTMENT FOR CAMERA SECTION

TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the CAMERA section.

1. Oscilloscope
   Dual Trace, 50MHz, 2mV/DIV,
   10 : 1 Probe
   1 : 1 Probe
2. Digital Volt Meter or VTVM
3. Frequency Counter
4. Vectorscope
5. Light Meter
6. Tripod
7. Colour Video Monitor
8. Lighting
   140 foot-candles (1400lux), on the chart surface 3200 degrees K.
9. Reflection Chart
   - *Logarithmic Gray Scale Chart (Part No. : YWV2310RB99)
   - *Colour Chip Chart (Part No. : YWV2100RB98)
   - *Ball Chart (Part No. : YWV2100RB03)
   - *Hunting Chart (Part No. : VFK0546)
   - *White Chart (Card) (Part No. : VFK0546)
   - *J Chart (Part No. : YWV2100RB3)
   - *B/W Chart (Part No. : VFK0546)
   - *Gray-White Chart (Part No. : VFK0546)
   - *Colour Bar Chart (Part No. : VFKS003B)
10. Plastic Tip Driver
11. Camera Unit Holder
    (Part No. : VFK0382)
12. Camera Holder Arm
    (Part No. : VFK0431)


(VFK0431)
(3pcs)
(VFK0382)

CAMERA UNIT HOLDER AND CAMERA HOLDER ARM

Fig.C1

13. Colour temperature conversion filter
    - *C12 Filter (Part NO. : VFK0374)
    - *C2 Filter (Part NO. : VFK0375)
    - *C8 Filter (Part NO. : VFK0547)
14. Camera Extension Cables
    - *Extension Cable(3P) (Part No.:VFKS0051)
    - *Extension Cable(6P) (Part No.:VFKS0052)
    - *Extension Cable(14P) (Part No.:VFK0430)
    - *Extension Cable(5P) (Part No.:VFK0503)
    - *Extension Cable(18P) (Part No.:VFK0380)
    - *Extension Cable(6P) (Part No.:VFK0497)

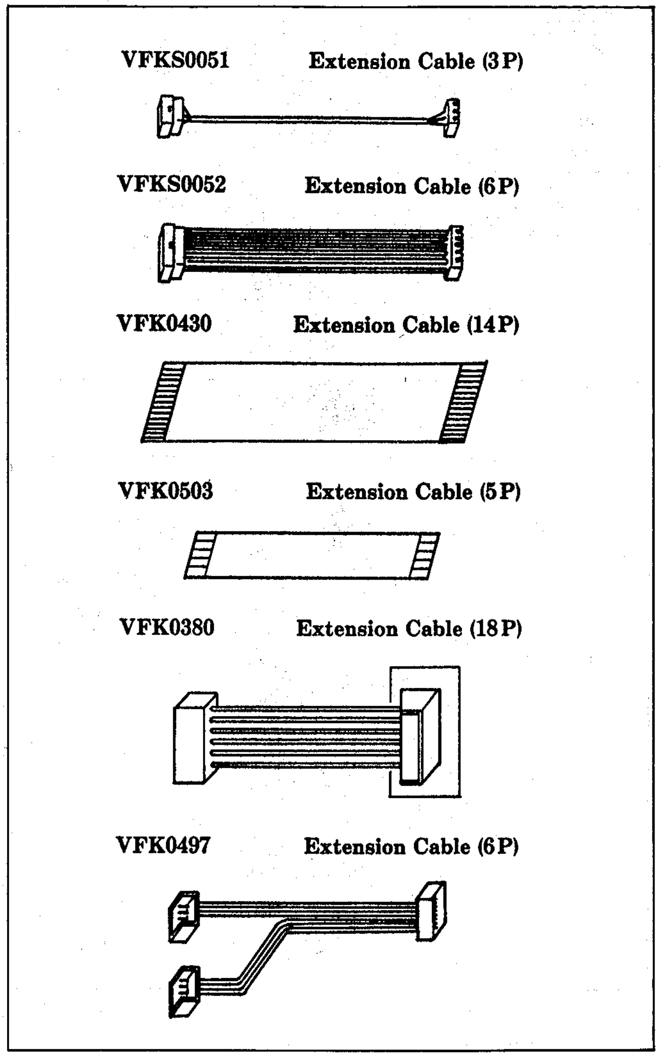

VFKS0051
Extension Cable (3P)
VFKS0052
Extension Cable (6P)
VFK0430
Extension Cable (14P)
VFK0503
Extension Cable (5P)
VFK0380
Extension Cable (18P)
VFK0497
Extension Cable (6P)

Fig.C2

PREPARATION

1). Remove the Side Case (L) and Side Case (R) from the Unit.
(Refer to the Disassembly Section.)
2). Mount the Camera Unit on the tripod using the Camera Unit Holder (VFK0382) and Camera Holder Arm (VFK0431).
3). Connect the Camera Unit, Video Recorder Unit, AC Adaptor, Camera Operation Unit and Colour Monitor TV as shown in Fig. C3.
4). Remove the flexible Cable (Which is connected between FP306 and P3504).
5). Connect the Extension cable (VFK0430) between FP306 and P3504.
6). Set the camera unit to tripod using camera holder (VFK0382) and camera holder arm (VFK0431). (refer to Technical Information).

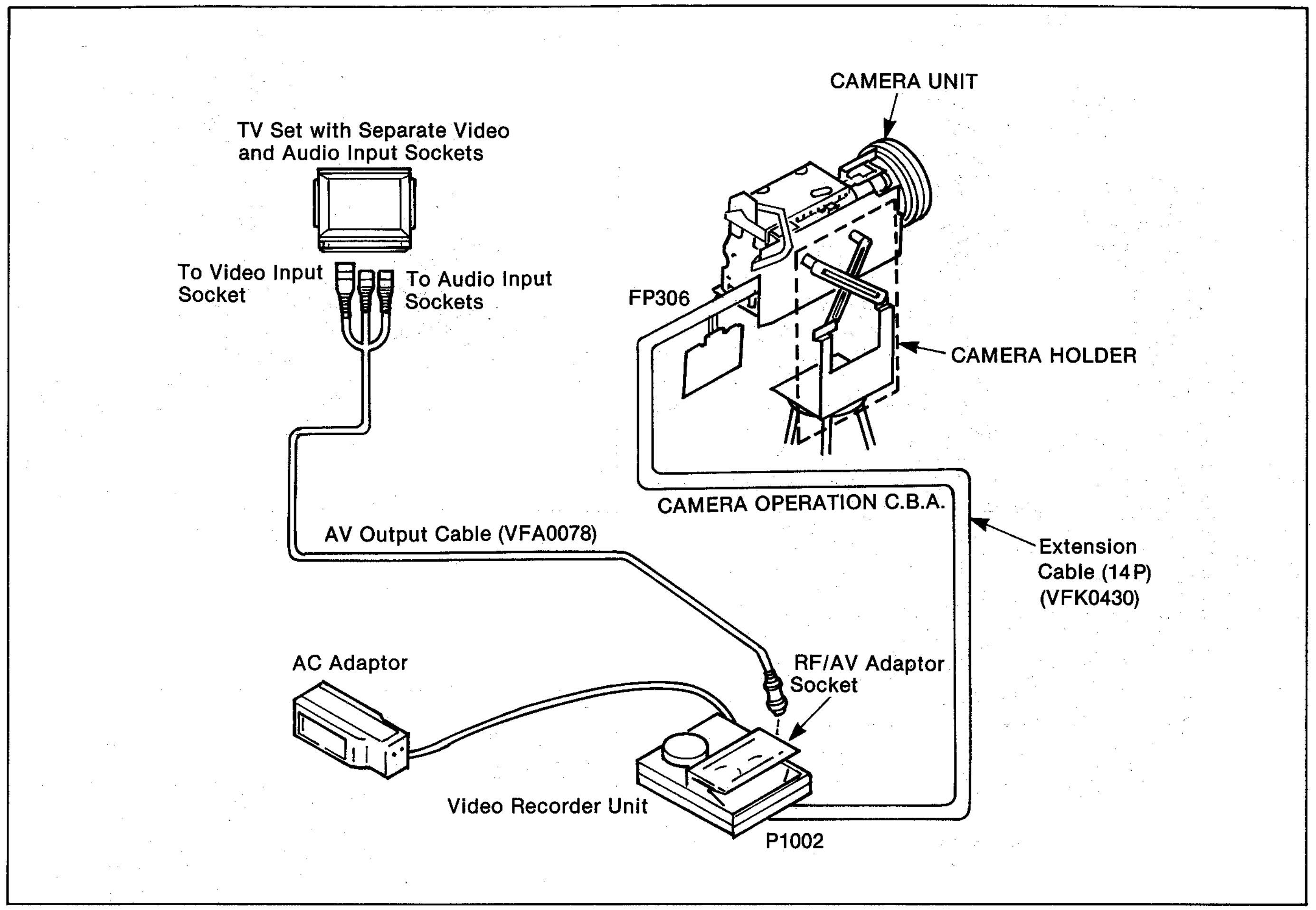

CAMERA UNIT
TV Set with Separate Video and Audio Input Sockets
To Video Input Socket
To Audio Input Sockets
FP306
CAMERA HOLDER
CAMERA OPERATION C.B.A.
AV Output Cable (VFA0078)
Extension Cable (14P) (VFK0430)
AC Adaptor
RF/AV Adaptor Socket
Video Recorder Unit
P1002

Fig.C3

Note:
<STANDARD SETTING FOR CAMERA ADJUSTMENT>
If there is no switch setting indication in adjustment procedures, set the camera switch as follows :

1) White Balance Switch ---- Indoor
   Iris VR ---- Centre
   Auto Focus ---- OFF (Manual)
   High Speed Shutter ---- OFF
2) For Trigger
   To trigger oscilloscope, use video out terminal FP306-7.
3) Lighting ---- use 3200 degree kelvin (colour temperature) halogen lamp or other light source (3200 degree K)
4) Service work for camera unit must be performed in a dust-free location to maintain lens cleanliness.

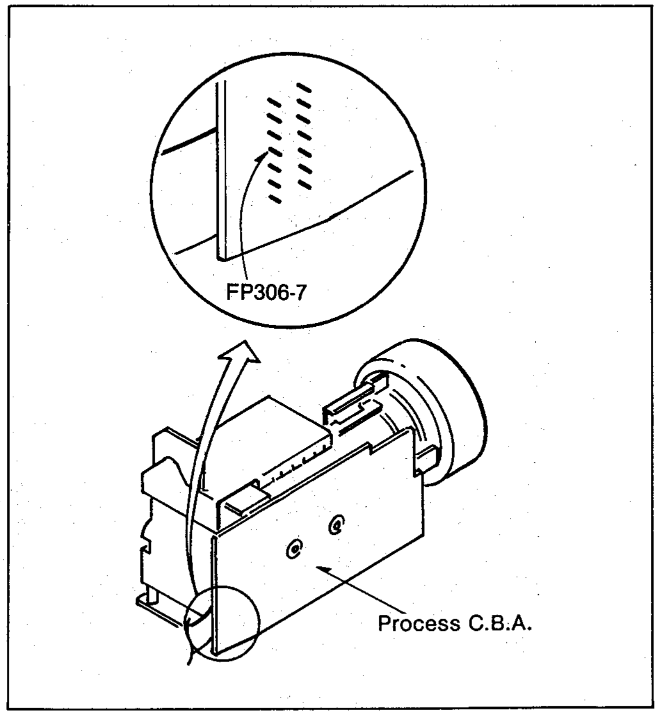

FP306-7
Process C.B.A.

Fig. C4-1

HOW TO USE CAMERA HOLDER ARM (VFK0431)

This Camera Holder Arm which is adjustable the span must be mounted to VFK0382 and it can be used with VFK0432 for camera adjustment or checking.

(A)	--- VFK0432	Holder Spacer (2pcs.)
(B)	--- VFK0431	Camera Holder Arm
(C)	--- XSN26+18	Screw (2pcs.)
(D)	--- VFK0382	Camera Holder

(1) Fix the Holder Arm (4) and (5) temporarily by screw (1) as shown in Fig. C4–2.
(2) Mount the Camera Holder Arm (B) to the Camera Holder (D) by screws (2) and (3) as shown in Fig. C4–3.
(3) Tighten the screws (C) with the Holder Spacers (A) as shown in Fig. C4–2.

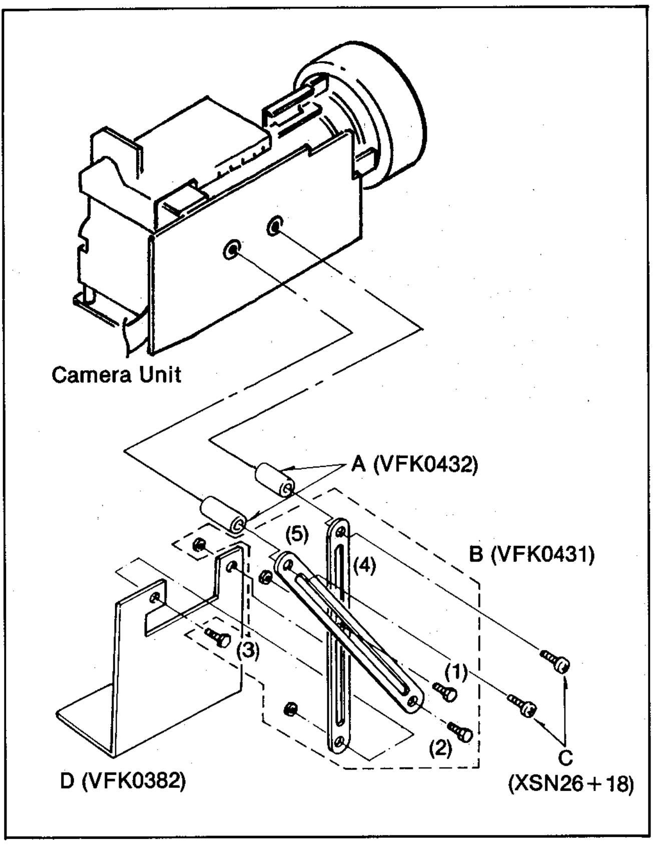

Camera Unit
A (VFK0432)
B (VFK0431)
(5)
(4)
(3)
(1)
(2)
D (VFK0382)
C
(XSN26+18)

Fig. C4–2

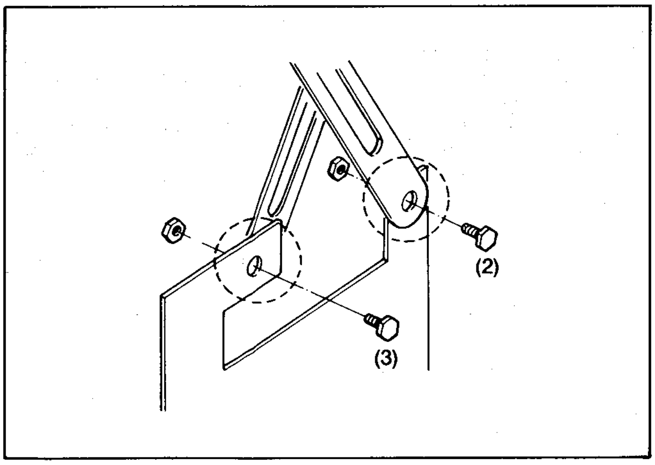
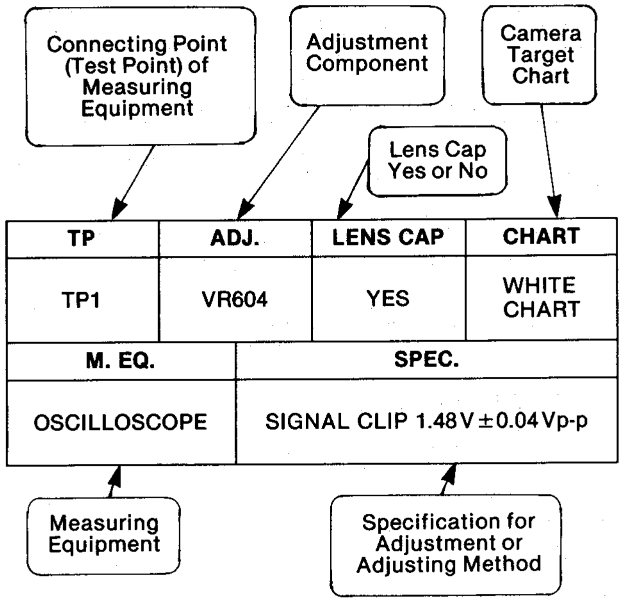


Fig. C4–3

HOW TO READ THE ADJUSTMENT PROCEDURES


Connecting Point (Test Point) of Measuring Equipment
Adjustment Component
Camera Target Chart
Lens Cap Yes or No
Measuring Equipment
Specification for Adjustment or Adjusting Method

TP	ADJ.	LENS CAP	CHART
TP1	VR604	YES	WHITE CHART

M. EQ.	SPEC.
OSCILLOSCOPE	SIGNAL CLIP 1.48V±0.04Vp-p

Note: If ☒ appears in any block, this means it is not used or not important.

Fig. C5–1

CCD DRIVE SECTION

1. BACK FOCUS ADJUSTMENT
2. PLL FREQUENCY ADJUSTMENT
3. OR BIAS ADJUSTMENT
4. V-SUB ADJUSTMENT
5. CCD OUTPUT ADJUSTMENT

PROCESS SECTION

6. PEDESTAL LEVEL ADJUSTMENT
7. ALC ADJUSTMENT
8. AGC ADJUSTMENT
9. IRIS VR ADJUSTMENT
10. Y 1H/2H DELAY LEVEL ADJUSTMENT
11. YH LEVEL ADJUSTMENT
12. CARRIER BALANCE AND BLACK LEVEL ADJUSTMENT
13. CHROMA 1H/2H DELAY LEVEL ADJUSTMENT
14. INDOOR WHITE BALANCE ADJUSTMENT
15. OUTDOOR WHITE BALANCE ADJUSTMENT
16. AWB OFFSET ADJUSTMENT
17. COLOR BURST AND R-Y/B-Y GAIN ADJUSTMENT
18. COLOUR PHASE AND R-Y/B-Y GAIN ADJUSTMENT
19. HIGH INTENSITY SUPPRESS ADJUSTMENT

20-1. AWT MODE (OFFSET) ADJUSTMENT

20-2. AWT MODE (GAIN) ADJUSTMENT

20-3. HIGH COLOUR TEMPERATURE ADJUSTMENT

AUTO FOCUS SECTION

21. AF GATE ADJUSTMENT
22. BIMOLF GAIN CONTROL ADJUSTMENT
23. AF AMP BIAS GAIN ADJUSTMENT
24. AF VH FREQUENCY ADJUSTMENT

Fig. C5-2

CCD DRIVE SECTION

1. BACK FOCUS ADJUSTMENT

(1) Aim the Camera at the Hunting Chart 3m distance and zoom all the way in (Fully tele position.)

(2) Focus the lens on the object.

(3) Confirm that Focus-ring indicates 3m.

(4) Adjust the relay lens adjustment point as shown in Fig. C6.

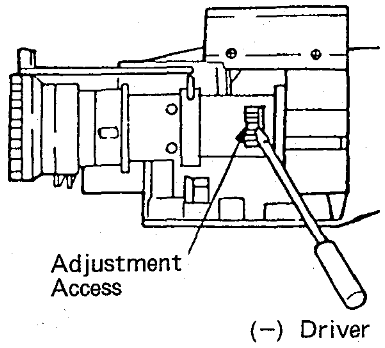


Fig.C6

(5) Zoom all the way back and adjust the back focus pitch so that the sharpest focus is obtained.

(6) Repeat the procedure as follows, zoom in, focus, zoom out and adjust until the best focus is obtained over the entire Zoom range.

2. PLL FREQUENCY ADJUSTMENT

(1) Remove the Sensor Shield Case by removing its 2 Screw.

TP	ADJ.	LENS CAP	CHART
PIN 7 OF B201	C292		

M. EQ.	SPEC.
FREQUENCY COUNTER	12.875MHz +– 10Hz

Note:
B201, C292 : Sensor C.B.A.

3. ΦR BIAS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP201	VR203	NO	J CHART

M. EQ.	SPEC.
OSCILLOSCOPE	WAVEFORM "A" IS MAXIMIZED

Note:
VR203, VR201, TP201 : ON SENSOR C.B.A.
TP516, TP520 : ON PROCESS C.B.A.

(1) Set the zoom ring to fully TELE position. Aim the camera at J chart and connect the jumper wire between TP516 and TP520.
(2) Pre-adjust VR201 (V-SUB VR) so that blooming or smear (vertical line) is appeared on TV screen.
(3) Connect the oscilloscope to TP201.
(4) Adjust the VR203 so that level "A" is maximized and signal does not distorted.

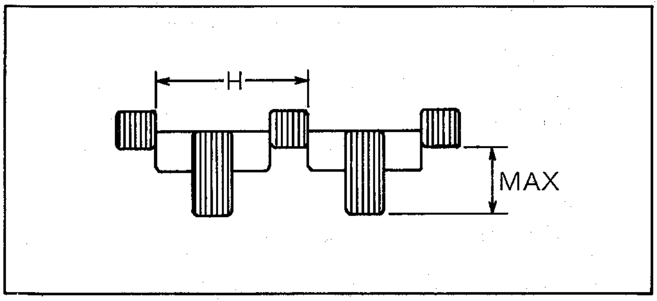


Fig.C7

4. V-SUB ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR201	NO	HALOGEN LAMP

M. EQ.	SPEC.
MONITOR TV	NO BLOOMING

(1) Zoom all the way in (Fully tele position) and aim the camera at the Halogen Lamp as shown in Fig. C8-1.

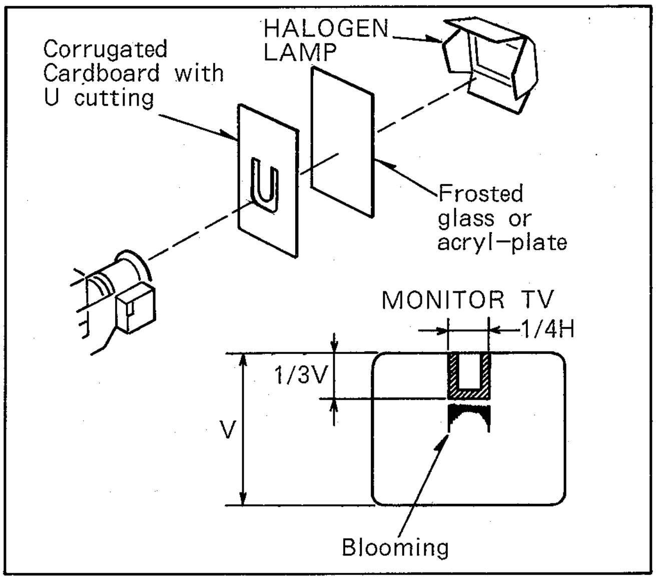

HALOGEN LAMP
Corrugated Cardboard with U cutting
Frosted glass or acryl-plate
MONITOR TV
1/4H
1/3V
V
Blooming

Fig. C8-1

(2) Set the High Speed Shutter SW to "OFF" portion
(3) Blind the lighting using frosted glass or acryl plate to diffuse incoming light. And also put a corrugated cardboard which inside is cut to "U" shape as shown in Fig. C8-2.
(4) Connect the jumper wire between TP516 and TP520 to open the Iris.
(5) Adjust VR201 so that blooming is just disappear.
(If blooming is not disappeared completely, adjust until minimum blooming)
(6) High Speed Shutter "ON" and "OFF" both mode, confirm that the monitored picture does not contain the Blooming even if the camera moves as shown in Fig. C8-2.

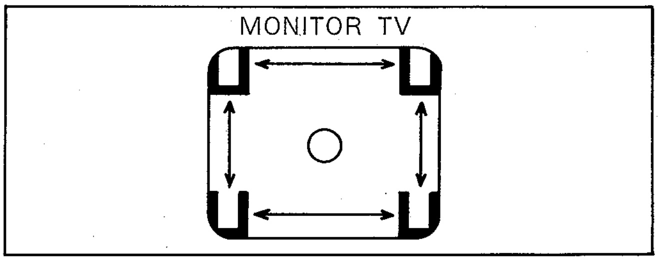


Fig. C8-2

Note:
J chart is also available for rough adjustment.

(1) Aim the camera at J chart.
(2) Set the lens to fully Tele position. And set the distance so that lower 1/3 of J chart comes to full picture frame of TV screen.
(3) Connect the jumper wire between TP516 and TP520 to open the Iris.
(4) Adjust the VR201 so that blooming is just disappeared.

5. CCD OUTPUT ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP201	VR202	NO	J CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		180mV+−10mV	

Note1:
TP201, VR202 : Sensor C.B.A.
TP515, VR327 : Process C.B.A.

(1) Aim the camera to J chart.
(2) Adjust the VR327 (Iris control) so that voltage at TP515 becomes 300mV +− 10mV.
(3) Adjust the VR202 (CCD OUT control) so that level "A" becomes 180mV +− 10mV as shown in Fig C9.

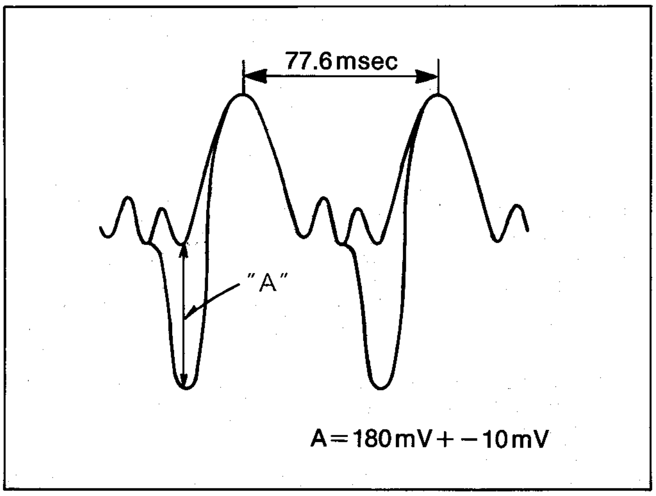


Fig.C9

PROCESS SECTION

6. PEDESTAL LEVEL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP514	VR301	YES	
M. EQ.		**SPEC.**	
OSCILLOSCOPE		SIGNAL LEVEL EQUALS THE BLANKING (BLANK) LEVEL.	

Note:
TP514, VR301 : Process C.B.A.

(1) Cover the Camera Lens with the Lens Cap.
(2) Connect the scope to TP514 and trigger with Pin 7 of FP306 (H−Rate).
(3) Adjust the Pedestal Level Control (VR301) so that the signal level equals the BLK level as shown in Fig. C10.

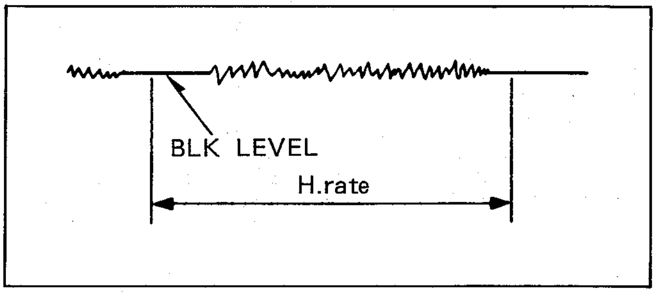


Fig.C10

7. ALC ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP515	VR327	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		0.28V+−0.02Vp-p	

Note:
TP515, VR327 : Process C.B.A.

(1) Set the Iris VR to centre fix position.
(2) Aim the camera at the gray scale chart.
(3) Connect the scope to TP515 and trigger with Pin 7 of FP306 (H−Rate).
(4) Adjust the Camera Unit to obtain 40usec picture frame as shown in Fig. C11.
(5) Adjust the Auto Iris Control (VR327) so that the signal level is 0.28V +− 0.02Vp−p.

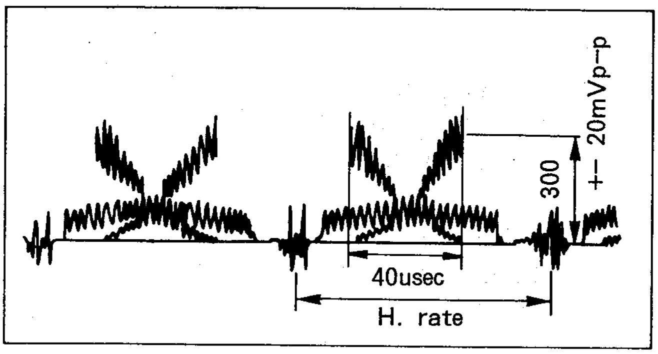


Fig.C11

8. AGC ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP514	VR324	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		0.30V +- 0.02Vp-p	

Note 1:
TP514, VR324 : Process C.B.A.

Note 2:
Confirm that voltage at TP523 is less than 3V. If not, adjust Iris VR.

(1) Aim the camera at the gray scale chart.
(2) Connect the scope to TP2 and trigger with Pin 7 of FP306 (H–Rate).
(3) Adjust the Camera Unit to obtain 40usec picture frame as shown in Fig. C12.
(4) Adjust the AGC Control (VR324) so that the signal level is 0.30V +– 0.02Vp–p.

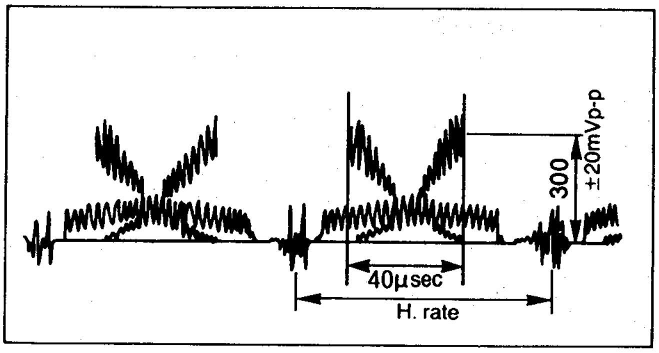


Fig.C12

9. IRIS VR ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP523	VR322	YES	
M. EQ.		**SPEC.**	
D.V.M		2.1V±0.1V	

Note:
TP523, VR322 : Process C.B.A.

(1) Set the Iris VR to centre fix position.
(2) Cover the lens with lens cap.
(3) Connect the volt meter to TP523.
(4) Adjust the VR322 so that voltage at TP523 becomes 2.1V +– 0.1V.

10. Y 1H/2H DELAY LEVEL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TS5, TS2, TS8 (TEST ROUND)	VR320 VR318	NO	GRAY SCALE
M. EQ.		**SPEC.**	
OSCILLOSCOPE		0±4.5mVp-p	

Note: VR320, TS5, TS2, TS8 : PROCESS C.B.A.
: (The gain CHA, CHB for oscilloscope should be same)

(1) Aim the camera at gray scale chart.
(2) Connect the oscilloscope to TS5 (CHA) and TS2 (CHB).
(3) Set the CHB for "INVERT" mode.
(4) Set the oscilloscope for "ADD" mode.
(5) Adjust the 1H delay level control (VR320) so that waveform becomes 0 +– 4.5mVp–p as shown below.
(6) Reconnect the CHB probe to TS8, (CHA is still connecting to TS5
CHB : INVERT mode.
oscilloscope : ADD mode.)
(7) Adjust the 2H delay level control (VR318) so that waveform becomes 0 +– 4.5mVp–p as shown below.

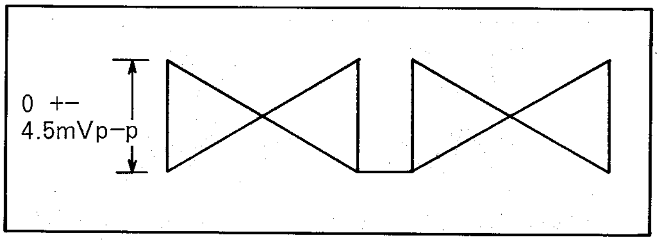


Fig.C13–1

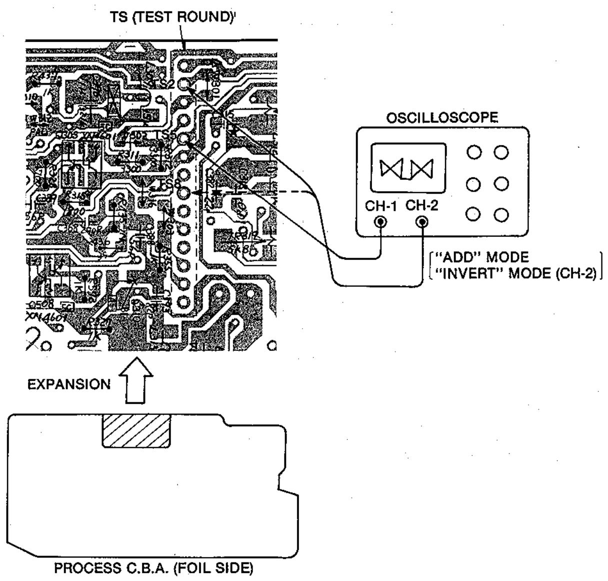

TS (TEST ROUND)
OSCILLOSCOPE
CH-1 CH-2
"ADD" MODE
"INVERT" MODE (CH-2)
EXPANSION
PROCESS C.B.A. (FOIL SIDE)

Fig.C13-2

11. YH LEVEL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
PIN 7 OF FP 306	VR315	NO	GRAY SCALE CHART

M. EQ.	SPEC.
OSCILLOSCOPE	B/A = 2.33 +– 0.15

Note:
VR315, FP306 : Process C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Connect the jumper wire among TP511,TP512 and TP513.
(3) Connect the scope to pin 7 of FP306. (Refer to Fig. C15)
(4) Adjust the YH Level Control (VR315) so that the signal level "B/A" is 2.33 +– 0.15 as shown in Fig. C14.
(5) Disconnect the jumper wire.

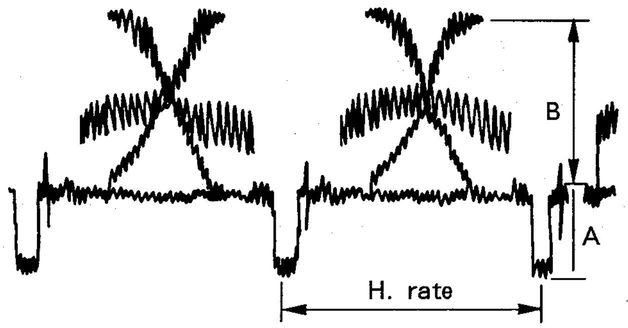


Fig.C14

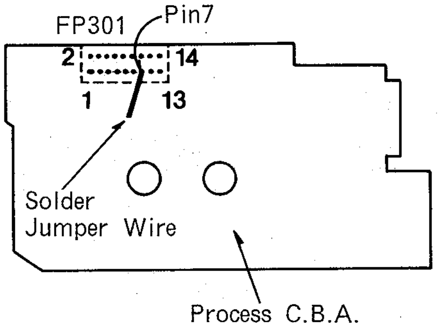

FP301
Pin7
2
14
1
13
Solder Jumper Wire
Process C.B.A.

Fig.C15

12. CARRIER BALANCE AND BLACK PEDESTAL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR305 VR306 VR303 VR304	YES	

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR305, VR306, VR303, VR304 : Process C.B.A.
TP511, TP512, TP513, TP522, TP511

WITH VECTORSCOPE

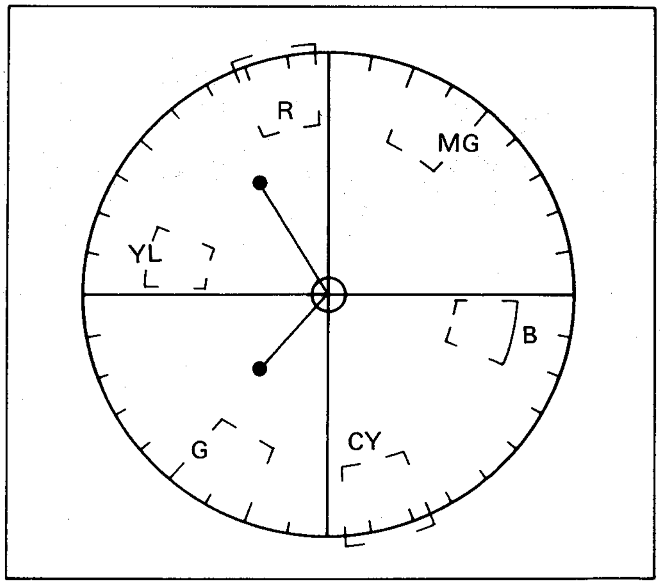


Fig.C16

(1) Cover the Camera Lens with the Lens Cap.
(2) Connect the jumper wire among TP511, TP512, and TP513 on process C.B.A. (to cut the feed back line (R–Y,B–Y))
(3) Connect the jumper wire between TP522 and TP511 to minimize AGC gain.
(4) Adjust the Black Pedestal Control (VR305, VR306) so that the colour vectors at the centre of screen on the vectorscope.
(5) Disconnect the jumper wire only between TP522 and TP511.
(6) Adjust the Carrier Balance Controls (VR303 and VR304) so that the colour vectors collect at the centre of screen on the vectorscope.

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR305, and VR306, first and Adjust VR303, VR304 next so that the waveform is minimized as shown in Fig. C17.

13. CHROMA 1H/2H DELAY LEVEL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TS7, TS10, TS11 (TEST ROUND)	VR319 VR317	YES	

M. EQ.	SPEC.
OSCILLOSCOPE	0±4.5mV

(1) Cover the camera lens with the lens cap.
(2) Supply the "WHD" signal(B305–2:process C.B.A) to TS7(test round) through the Buffer circuit and adjust VR1(on Buffer circuit) so that the voltage of TS7(test round) becomes 300mVp–p+–5mVp–p as shown in Fig.C18–1.

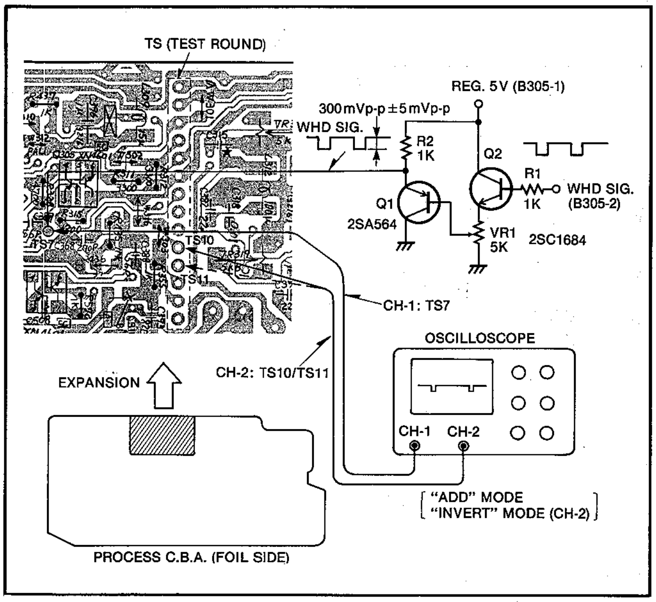


Fig. C18–1

(3) Set the oscilloscope to"ADD" mode and "INVERT" mode for CH–2.
And connect the oscilloscope CH–1 to TS7(test round) and CH–2 to TS10(test round).
(4) Adjust VR319 so that the level of waveform becomes 0+–4.5mV as shown in Fig.C18–2.
(5) Connect the oscilloscope CH–1 to TS7(test round) and CH2 to TS11(test round).
(6) Adjust VR317 so that the level of waveform becomes 0+–4.5mVp–p as shown in Fig.C18–2.

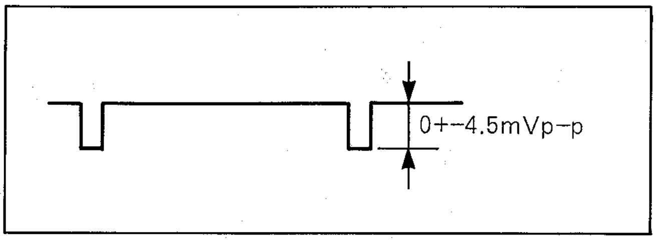


Fig.C18–2

14. INDOOR WHITE BALANCE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR311 VR312	NO	WHITE CHART

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR311, VR312 : Process C.B.A.

WITH VECTORSCOPE

(1) Set the White Balance Switch to "INDOOR" side.
(2) Connect the jumper wire among TP511, TP512 and TP513 on process C.B.A. to cut the R–Y, B–Y feed back loop.
(3) Aim the camera at the White Chart.
(4) Supply the video signal to the vectorscope.
(5) Adjust the White Balance Controls (VR311 and VR312) so that the colour vectors are collected at the centre of screen on the vectorscope as shown in Fig. C19.

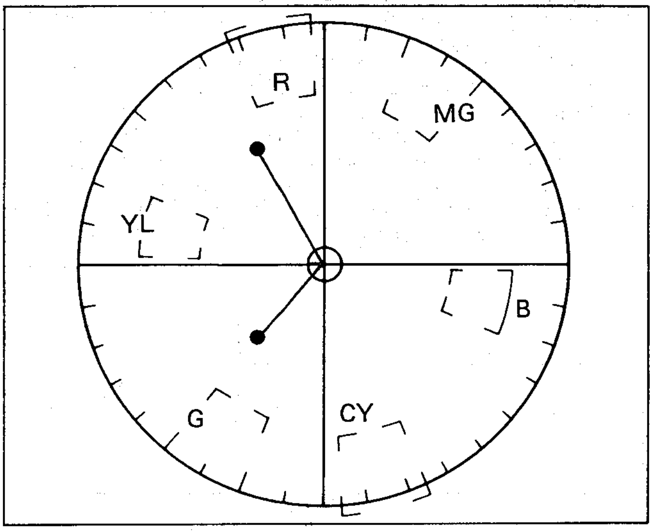


Fig.C19

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR311 and VR312 so that the waveform is minimized.

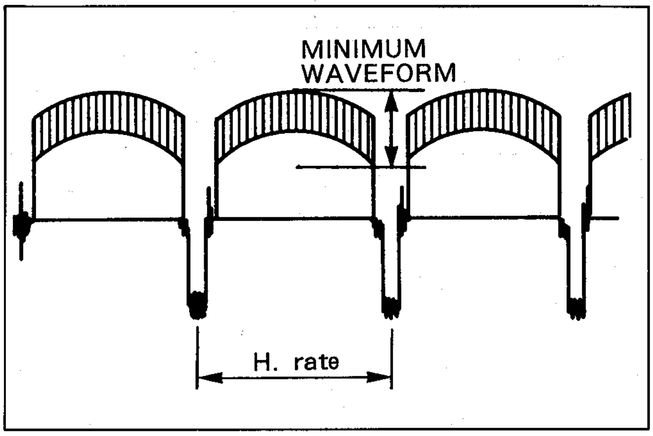


Fig.C20

15. OUTDOOR WHITE BALANCE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR528 VR529	NO	WHITE CHART

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR528, VR529 : Process C.B.A.

WITH VECTORSCOPE

(1) Set the White Balance Switch on the Camera Operation Unit to the "OUTDOOR".
(2) Connect the jumper wire among TP511, TP512 and TP513 on Process C.B.A. to cut the R−Y, B−Y feed back loop.
(3) Aim the camera at the White Chart (lighting should be 3200 degrees K Halogen lamp.)
(4) Supply the video signal to the vectorscope.
(5) Attach the colour temperature conversion filter (VFK0374 and VFK0375) which convert 3200 degrees Kelvin to 5600 degrees Kelvin in front of the lens (Refer to Note 1).
(6) If the colour temperature conversion filter is not available, use a day light source. (Refer to Note 2)
(7) Adjust the White Balance (B−Y) Outdoor Gain and White Balance (R−Y) Outdoor Gain Controls (VR528 and VR 529) so that the colour vectors move to the centre of screen on the vectorscope. (Refer to Fig. C21)
(8) Remove the colour temperature conversion filter with the fixture from the lens.
(9) Remove the jumper wire from TP511, TP512, TP513.

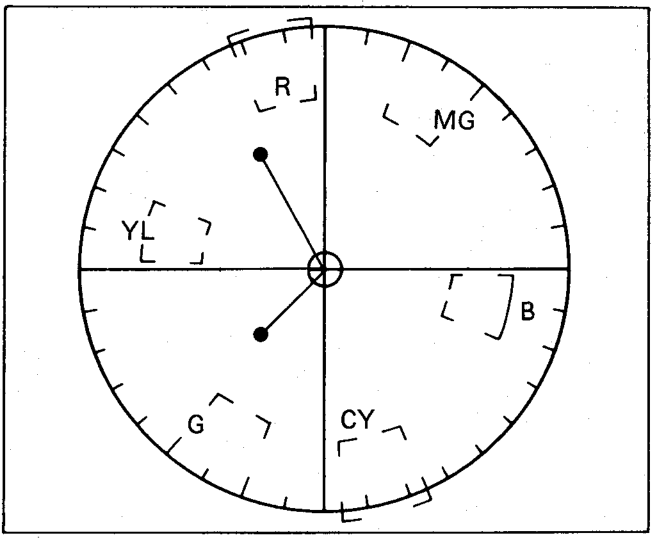


Fig.C21

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR528 and VR529 so that the waveform is minimized.

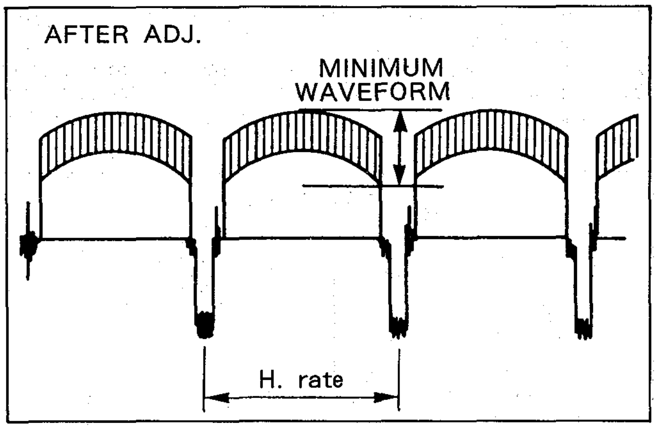
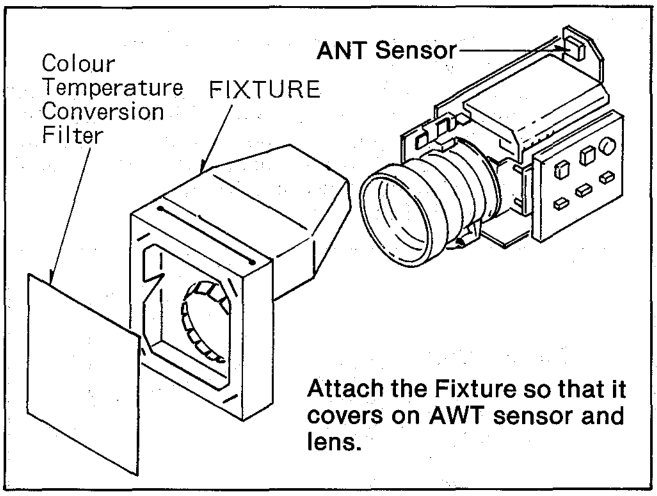

AFTER ADJ.
MINIMUM WAVEFORM
H. rate

Fig.C22


Colour Temperature Conversion Filter
FIXTURE
ANT Sensor

Attach the Fixture so that it covers on AWT sensor and lens.

Fig.C23

Note 1:
Attach the fixture (make a fixture yourself referring measurements and How to make fixture below shown in Fig. C24) to the lens and then set the colour temperature conversion filter to fixture.

<How to make a fixture>

a) Print the actual measure an the hard paper referring Fig.C24.
b) Cut the paper along the solid line.
c) Apply the past to the oblique line.
d) Fold the paper along the dotted line.
e) Construct the fixture referring completion drawing as shown in Fig. C24.

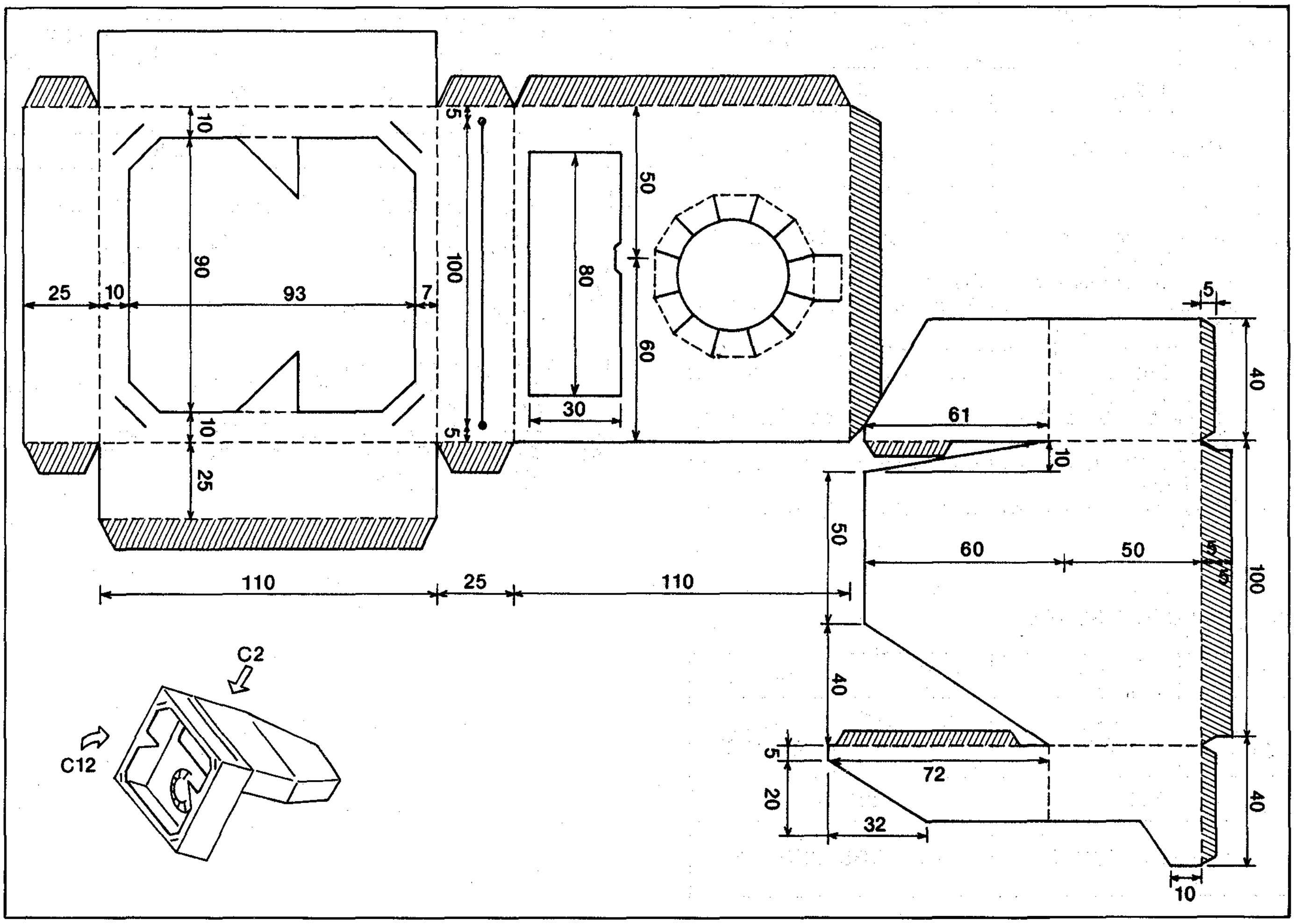

10
90
10
25
25
10
93
7
5
100
5
80
30
50
60
110
25
110
5
40
61
10
100
50
60
50
5
5
40
40
72
5
20
32
10
C2
C12

Fig.C24

Note 2:

(1) Aim the camera at a sunny source (window, etc.).

(2) Incoming light must be from an outdoor source only, source and illumination on the sensor must be more than 500Lx, and colour temperature must be within 5000 degrees to 6000 degrees Kelvin. (Refer to Fig. C25)

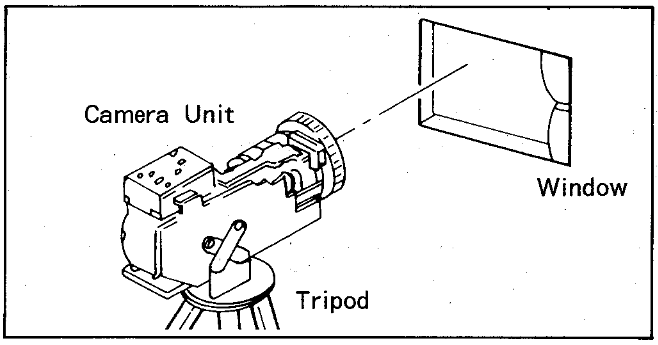


Fig.C25

16. AWB OFFSET ADJUSTMENT WITH OSCILLOSCOPE

TP	ADJ.	IRIS	CHART
TP511, TP512 TP513	VR530 VR531		WHITE CHART
M.EQ.		**SPEC.**	
OSCILLOSCOPE		0 +– 0.1V	

(1) White balance selector should be set for "INDOOR".

(2) Aim the camera to white chart.

(3) Confirm that any GND probe of oscilloscope is not connected to GND.

(4) Connect the GND probe to TP511. And hot probe to TP512. Set the oscilloscope to DC range.

(5) Adjust the VR530 so that voltage become 0 +– 0.1V.

(6) Connect the GND probe to TP511 and hot probe to TP513.

(7) Adjust the VR531 so that voltage become 0 +– 0.1V.

WITH VECTOR SCOPE

TP	ADJ.	IRIS	CHART
VIDEO OUT	VR530 VR531		WHITE CHART
M.EQ.		**SPEC.**	
VECTOR SCOPE		VECTORS CENTRE	

(1) Aim the camera at the white chart and focus the lens on the object.

(2) Connect the VECTOR SCOPE to the video output.

(3) Adjust the offset control (VR530, VR531) so that the vector comes to centre as shown below.

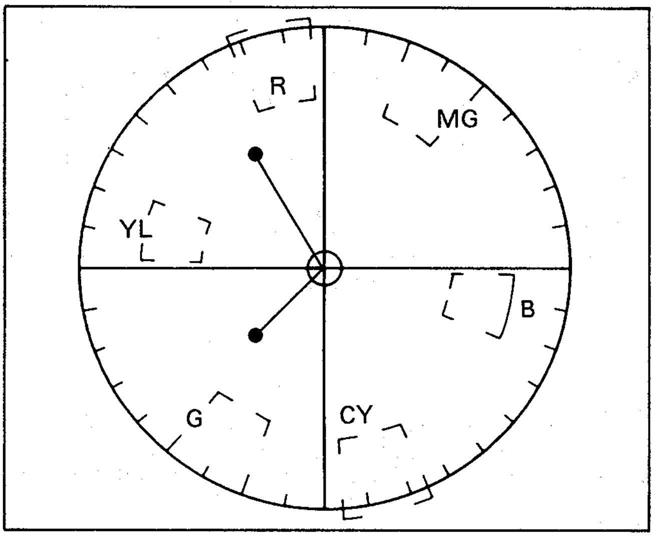


Fig.C26

17. BURST PHASE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUT	VR329	YES	
M. EQ.		**SPEC.**	
VECTOR SCOPE		135 degree±2 degree	

Note:
VR329 : Process C.B.A.

(1) Cover the lens with lens cap.

(2) Supply the video out signal to the vectorscope.

(3) Set the vector scope for "NTSC" mode.

(4) Adjust the VR329 so that burst phase become 135 +– 2 degree.

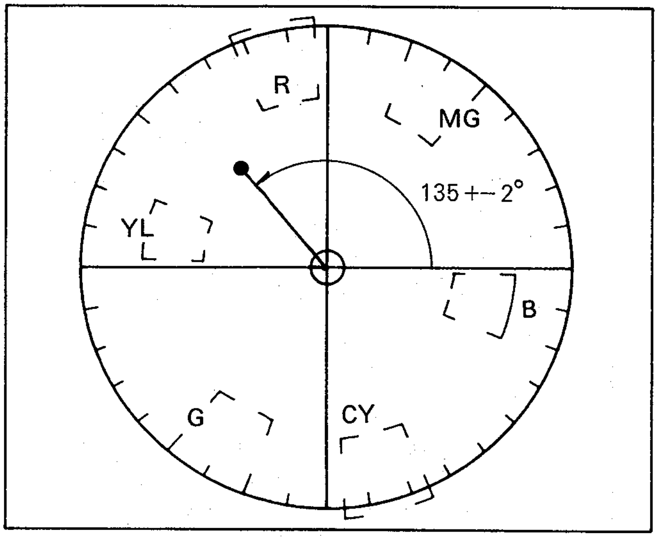


Fig.C27

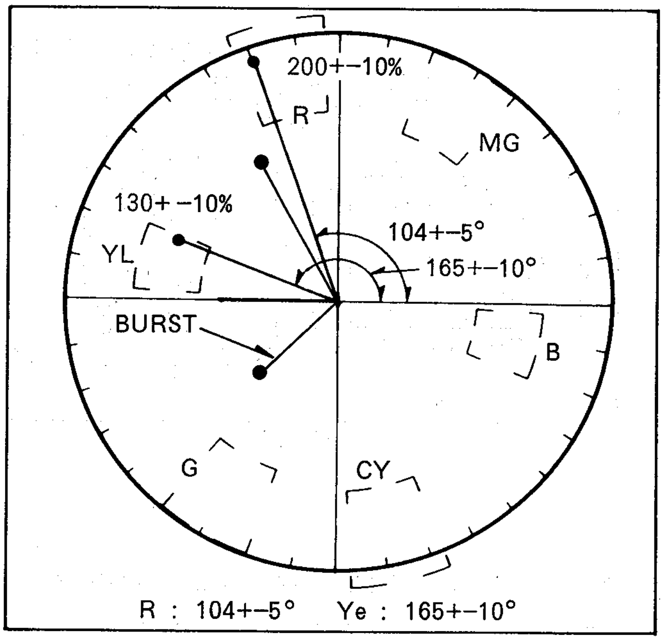


Fig.C28

18. COLOUR PHASE AND R-Y/B-Y GAIN ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR310, VR307, VR314, VR313, VR328	NO	COLOUR CHIP CHART

M. EQ.	SPEC.
VECTORSCOPE	Fig.C28

Note:
VR310, VR307, VR314, VR313, VR328 : Process C.B.A

(1) Aim the camera at a Colour Chip Chart.
(2) Set the vector scope to NTSC mode.
(3) Adjust the VR310 so that cracked Red vector comes one.
(4) Set the vector scope to PAL mode.
(5) Connect the jumper wire among TP511, TP512 and TP513 on the Process C.B.A.
(6) Supply the video signal to the vectorscope.
(7) Adjust the Colour Phase Control (VR307 and VR314), the R–Y Gain Control (VR313) and the B–Y Gain Control (VR328) so that the vector of each colour is as shown in Fig. C23.

19. HIGH INTENSITY SUPPRESS (HC) ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
╳	VR309	NO	COLOUR CHART

M. EQ.	SPEC.
TV MONITOR	HALF SIZE (YELLOW) YELLOW COLOUR IS JUST BEFORE CUT OFF

Note:
VR309 : Process C.B.A.

(1) Aim the camera at the colour chart. (colour bar).
(2) Set the horizontal picture frame (H size) to 40usec, and memorize the level of yellow part.
(3) Set the horizontal picture frame to 16usec.
(4) In case that the level of yellow part is more than 50% compared with the yellow level of when horizontal picture frame is 40 usec :
Adjust the VR309 so that the level of yellow becomes 50% as shown in Fig. C30.
(5) In case that the level of yellow part is already less than 50% of when the horizontal picture frame is 40usec:
Adjust the VR309 until just before yellow part begins to disappear.

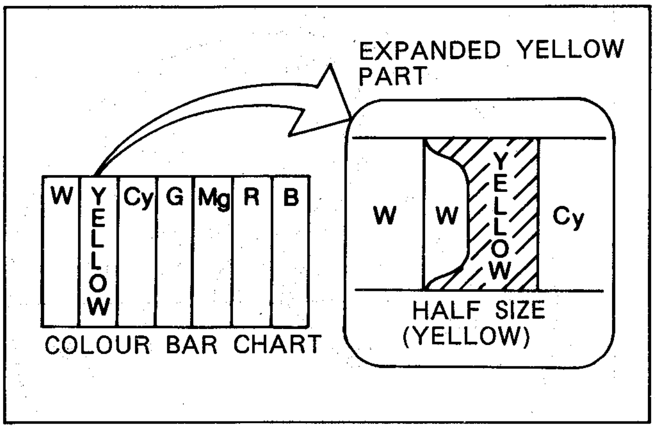

EXPANDED YELLOW PART
W
YELLOW
Cy
G
Mg
R
B
COLOUR BAR CHART
W
W
YELLOW
Cy
HALF SIZE (YELLOW)

Fig.C29

20-1. AWT MODE (OFFSET) ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR525 VR526	NO	WHITE CHART

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR525,VR526 : Process C.B.A.

WITH VECTORSCOPE

(1) Set the White balance selector for "AUTO" position.
(2) Aim the camera at the white chart.
(3) Supply the video signal to the vectorscope.
(4) Connect the jumper wire among TP511, TP512 and TP513 to cut the R−Y, B−Y feed back line.
(5) Set the diffusion plate on to surface of AWT sensor and taping around sensor with black tape so that any light is not entered to sensor from the gap between sensor and diffusion plate.
(6) Adjust the VR525 and VR526 so that the colour vectors move to centre of screen on vector scope. (Refer to Fig. C30)

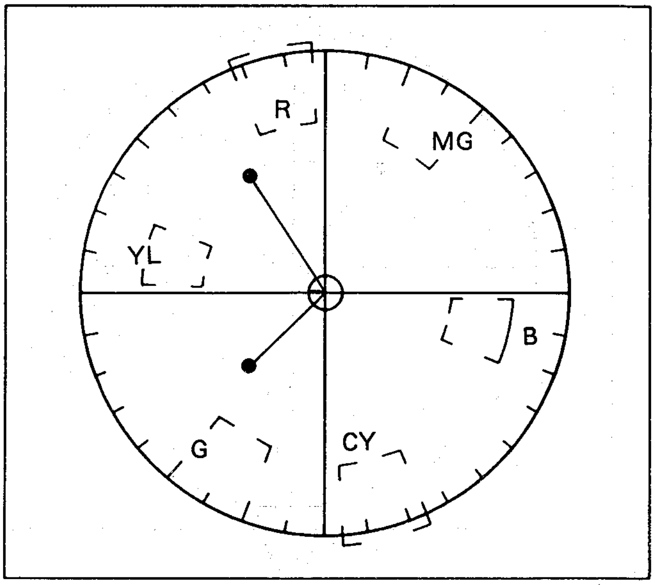


Fig.C30

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR525 and VR526 so that the waveform is minimized.

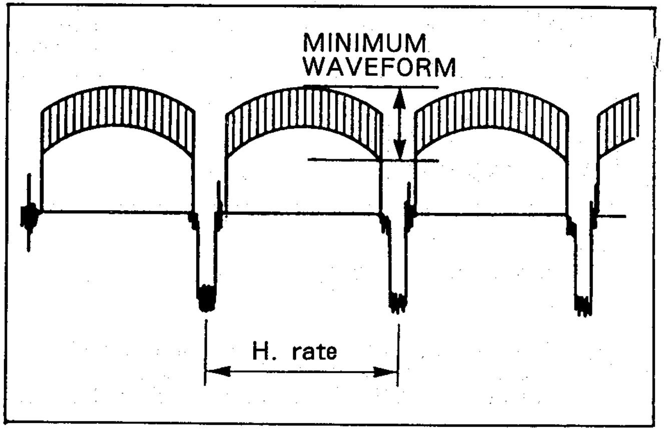

MINIMUM WAVEFORM
H. rate

Fig.C31

20-2. AWT MODE (GAIN) ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR523, VR527	NO	WHITE CHART

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR523, VR527 : Process C.B.A.

WITH VECTORSCOPE

(1) Set the White balance selector for "AUTO" position.
(2) Aim the camera at the white chart, Lighting should be a 3200 degrees K Halogen lamp.
(3) Supply the video signal to the vectorscope.
(4) Connect the jumper wire among TP511, TP512 and TP513.
(5) Attach the diffusion plate (VKM1049) onto surface of AWT sensor and taping around the sensor with black tape so that any light is not entered to sensor from the gap between sensor and diffusion plate.
(6) Set the fixture (refer to Note 1 of item 15, outdoor white balance Adjustment) to the lens.
(7) Set the colour temperature conversion filter to the fixture as shown in Fig. C32. (VFK0547 to front of lens)

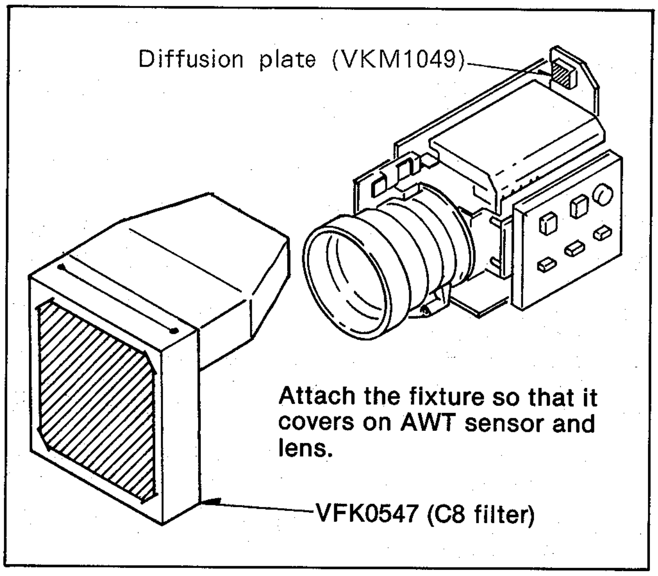

Diffusion plate (VKM1049)
Attach the fixture so that it covers on AWT sensor and lens.
VFK0547 (C8 filter)

Fig.C32

(8) Adjust the VR523 and VR527 so that colour vectors collect at centre.
(9) Next, remove the colour temperature conversion filter with fixture from the lens. If the colour vectors do not collect at centre, adjust the AWT offset adjustment controls (VR525, VR526) so that colour vectors come to centre.
(10) Repeat steps (6)–(9).

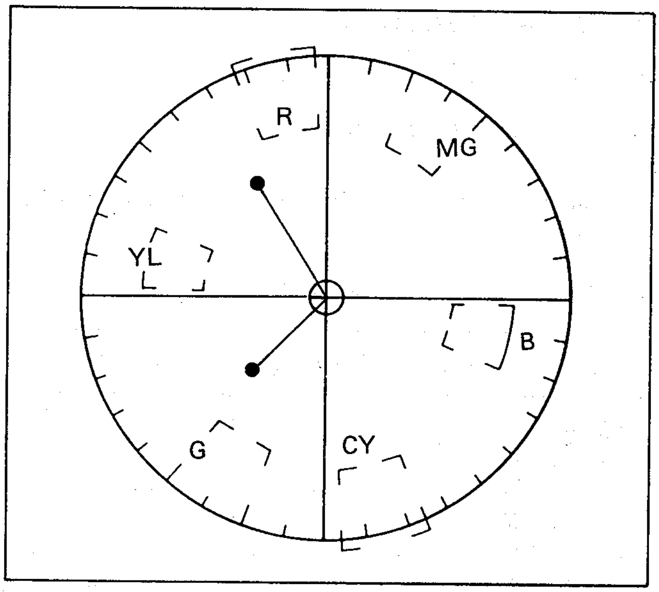


Fig.C33

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR523, VR527, VR525 and VR526 that the waveform is minimized.

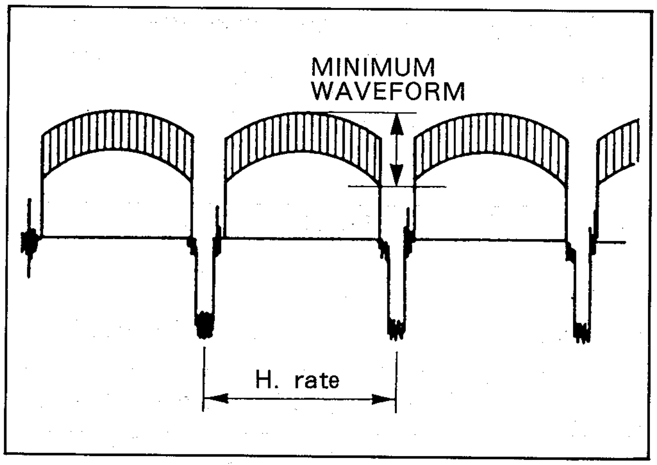

MINIMUM WAVEFORM
H. rate

Fig.C34

AUTO FOCUS SECTION

PREPARATION

The following adjustments are for the Auto Focus Unit.

(1) Camera zoom is positioned at the end of TELE side.

21. AF GATE ADJUSTMENT

TP	ADJ.	IRIS CAP	CHART
TP702 TP703	C703	NO	

M. EQ.	SPEC.
OSCILLOSCOPE	T = 9.6 +- 0.4u-sec.

Note:
TP702, TP703, C703 : AF C.B.A.

(1) Set the AF Gate Control (C703) as shown in Fig. C35.

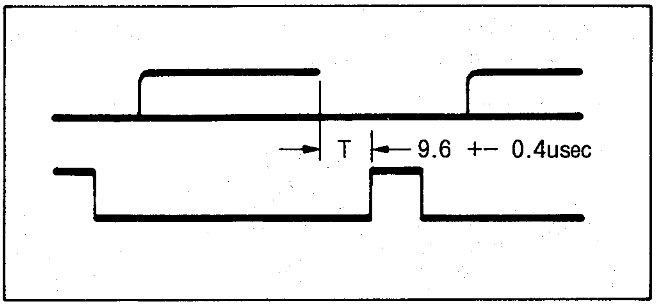


Fig.C35

22. BIMOLF GAIN CONTROL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP704	VR703	YES	

M. EQ.	SPEC.
OSCILLOSCOPE	A = 11V +- 0.5Vp-p

Note:
TP704, VR703 : AF C.B.A.

(1) Set the Focus Switch to the MANUAL position.
(2) Cover the camera lens with the lens cap.
(3) Connect the scope to the TP704.
(4) Adjust the Bimolf Gain Control (VR703) so that the signal level (A) is 11V +- 0.5Vp-p.

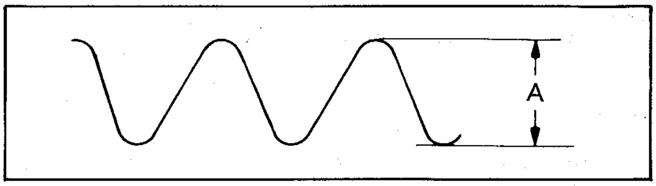


Fig.C36

23. HALL AMX ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP518, TP516 TP521, TP520	VR701 VR702	NO	GRAY SCALE CHART

M. EQ.	SPEC.
D.V.M.	----------------

Note:
TP516, TP518, TP520, TP521 : Process C.B.A.
VR701, VR702 : AF C.B.A.

(1) Connect a jumper wire between TP516 and TP521 to close Iris.
(2) Adjust the HALL AMP Control (VR701) so that the voltage level at TP518 is 1.74V +- 0.02V.
(3) Disconnect the jumper wire between TP516 and TP521.
(4) Next, connect a jumper wire between TP516 and TP520 to open the Iris.
(5) Adjust the HALL AMP Control (VR702) so that the voltage Level of TP518 is 3.72V +- 0.05V.
(6) Disconnect the jumper wire between TP516 and TP520.
(7) Next, confirm the voltage level at TP518 by connecting a jumper wire between TP516 and TP521.
(8) If the voltage level at TP518 is not 1.74V +- 0.02V, repeat steps (1) - (6).

24. AF VH FREQUENCY ADJUSTMENT

TP	ADJ.	IRIS CAP	CHART
TP705	C737	NO	WHITE/GRAY CHART

M. EQ.	SPEC.
OSCILLOSCOPE	A = 2.80V +- 0.05V DC-RANGE

Note:
TP705, TP710 : AF C.B.A.
TP516, TP520 : Process C.B.A.
ZOOM : TELE SIDE
Focus : AUTO

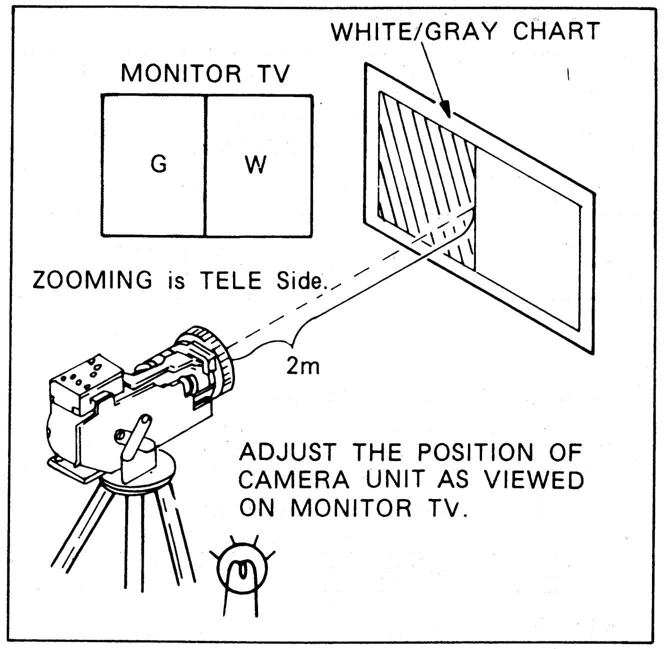

WHITE/GRAY CHART
MONITOR TV
G
W
ZOOMING is TELE Side.
2m
ADJUST THE POSITION OF CAMERA UNIT AS VIEWED ON MONITOR TV.

Fig.C37

(1) Connect a jumper between TP516 and TP520 to open the Iris.
(2) Aim the camera at the white/gray chart that was attached to previous service manual of Movie Camera.
(3) Set the lighting condition so that voltage at TP710 becomes 180mV +- 10mVp-p as shown below.

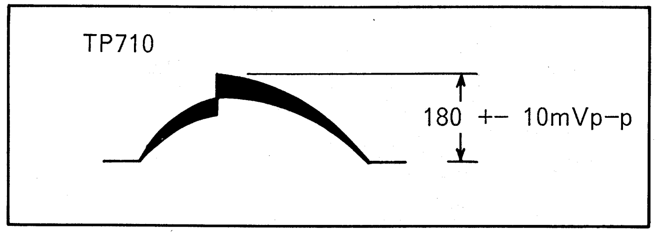

TP710
180 +- 10mVp-p

Fig.C38

(4) Adjust the VH frequency level control (C737) so that DC level at TP705 becomes 2.8V +- 0.05V as shown below.

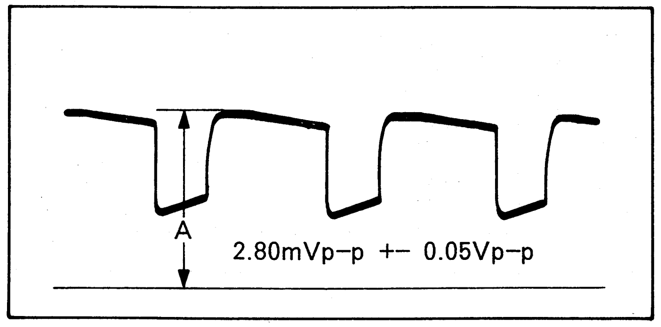

A
2.80mVp-p +- 0.05Vp-p

Fig.C39

2-4-2. ELECTRICAL ADJUSTMENT FOR E.V.F. SECTION

PREPARATION

The following adjustments are for Electronic Viewfinder.

(1) Connect the Viewfinder plug to the E.V.F. connector on the unit.
(2) The camera circuit must be completely aligned before viewfinder adjustments are made.

1. H-OSC ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
Pin 6 of P901	VR902	NO	BALL CHART
M. EQ.		**SPEC.**	
FREQUENCY COUNTER		15.9KHz +- 0.1KHz	

Note:
P901, VR902 : E.V.F. C.B.A.

(1) Connect the scope to Pin6 of P901, use DC.
(2) Adjust the H-OSC (VR902) so that the frequency is 15.9 +- 0.1KHz.

2. CENTERING ADJUSTMENT

(1) Aim the camera at the registration chart.
(2) Adjust the Deflection Yoke Centering Magnets by turning them so that the picture on monitor TV is centered.

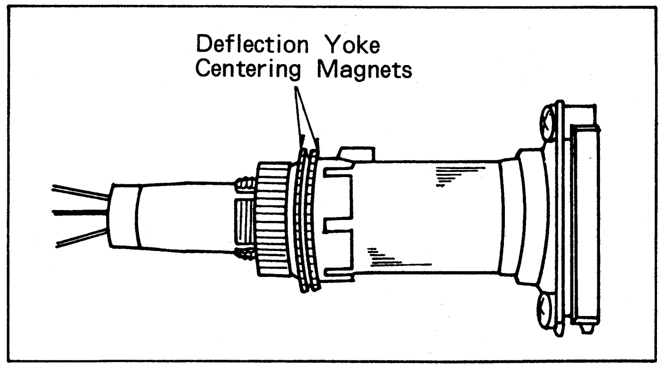

Deflection Yoke
Centering Magnets

Fig.C40

3. FOCUS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR904	NO	BALL CHART
M. EQ.		**SPEC.**	
VIEWFINDER		BEST RESOLUTION	

Note:
VR904 : E.V.F. C.B.A.

(1) Aim the camera at the Ball chart.
(2) Adjust the focus control (VR904) for best resolution in the viewfinder.

4. V. SIZE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR901	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
VIEWFINDER		VERTICAL SIZE IS FIXED.	

Note:
VR901 : E.V.F. C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Adjust the Vertical Size (VR901) so the Vertical Size is correct and the picture does not roll as shown in Fig. C41.

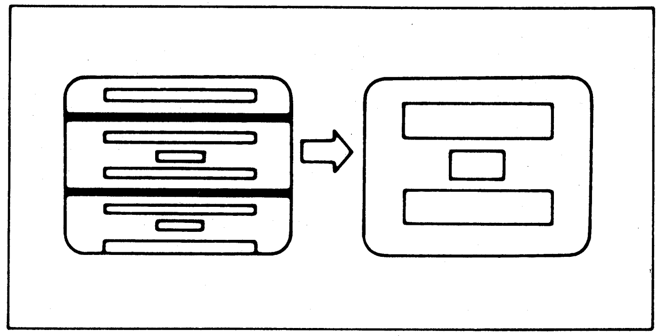


Fig.C41

5. BRIGHTNESS ADJUSTMENT

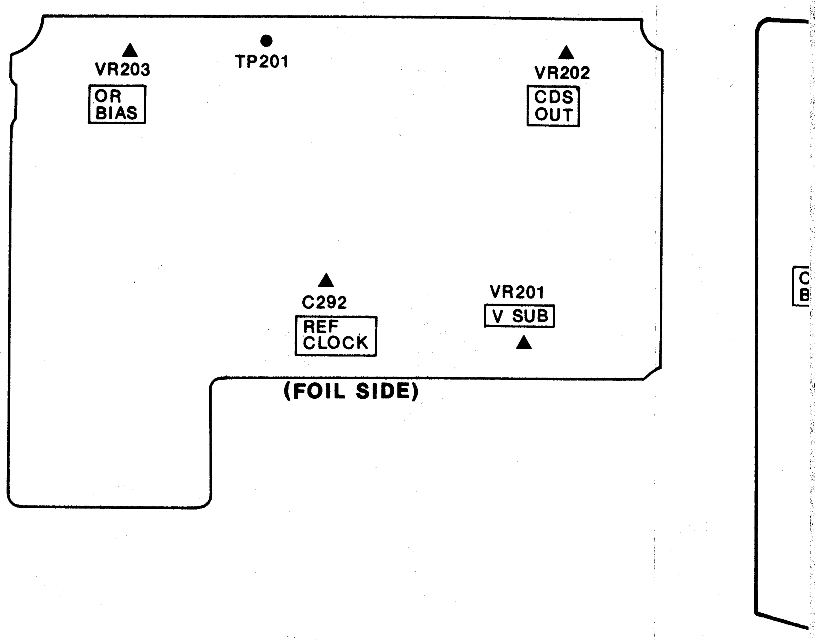
TP	ADJ.	LENS CAP	CHART
	VR905	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
VIEWFINDER		NATURAL GRADATION	

Note:
VR905 : EVF C.B.A.

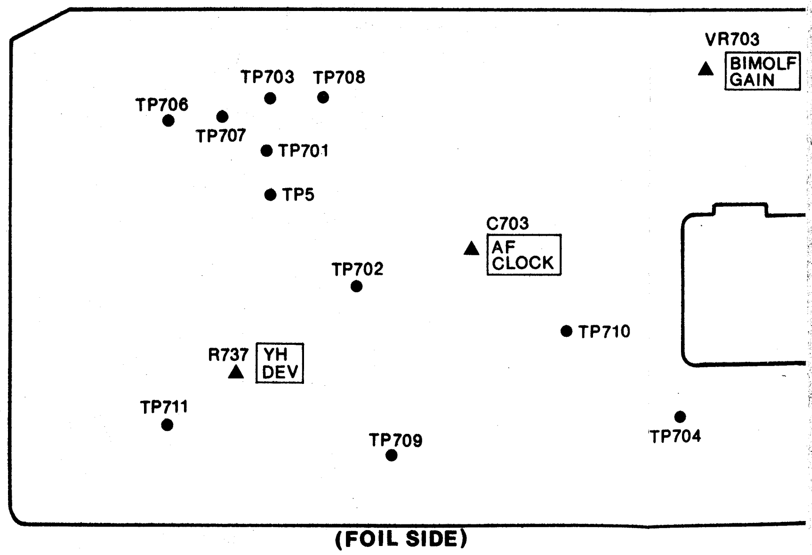
(1) Aim the camera at gray scale chart.
(2) Adjust the brightness control (VR905) so that the black and white bars in the EVF screen are the same as they are in the monitor TV screen.

LOCATION

SENSOR C.B.A (CCD DRIVE)


VR203
OR BIAS
TP201
VR202
CDS OUT
C292
REF CLOCK
VR201
V SUB
(FOIL SIDE)

AUTO FOCUS C.B.A.


VR703
BIMOLF GAIN
TP703
TP708
TP706
TP707
TP701
TP5
C703
AF CLOCK
TP702
TP710
R737
YH DEV
TP711
TP709
TP704
(FOIL SIDE)

ENT FOR

e for Electronic

g to the E.V.F.

completely aligned are made.

CHART
BALL CHART
PEC.
+- 0.1KHz

P901, use DC.
2) so that the

ation chart.
Centering Magnets
the picture on

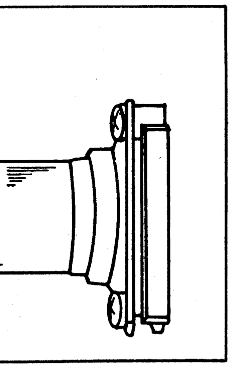


CHART
BALL CHART
SPEC.
ESOLUTION

Note:
VR904 : E.V.F. C.B.A.

(1) Aim the camera at the Ball chart.
(2) Adjust the focus control (VR904) for best resolution in the viewfinder.

4. V. SIZE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
╳	VR901	NO	GRAY SCALE CHART
M. EQ.	SPEC.		
VIEWFINDER	VERTICAL SIZE IS FIXED.		

Note:
VR901 : E.V.F. C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Adjust the Vertical Size (VR901) so the Vertical Size is correct and the picture does not roll as shown in Fig. C41.

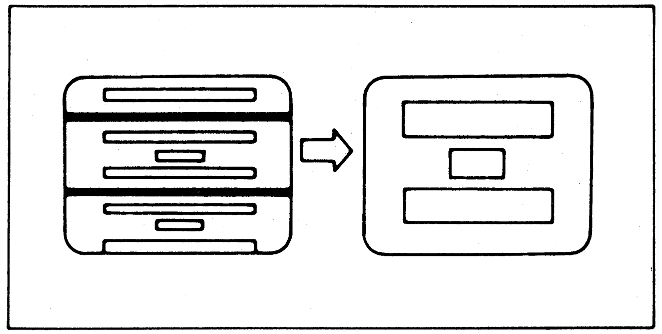


Fig.C41

5. BRIGHTNESS ADJUSTMENT

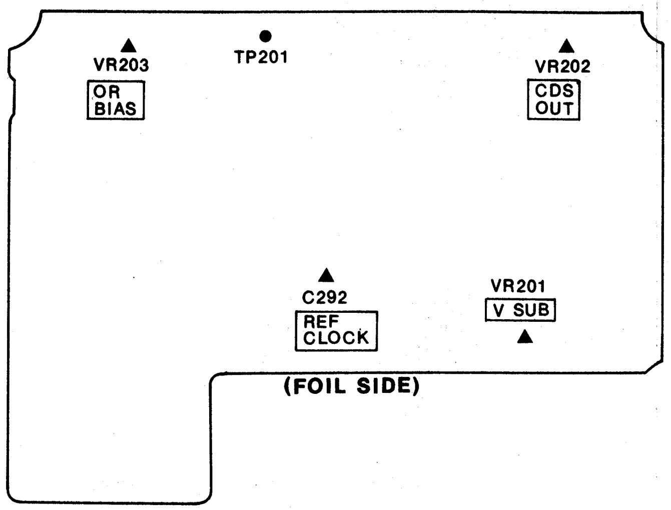
TP	ADJ.	LENS CAP	CHART
╳	VR905	NO	GRAY SCALE CHART
M. EQ.	SPEC.		
VIEWFINDER	NATURAL GRADATION		

Note:
VR905 : EVF C.B.A.

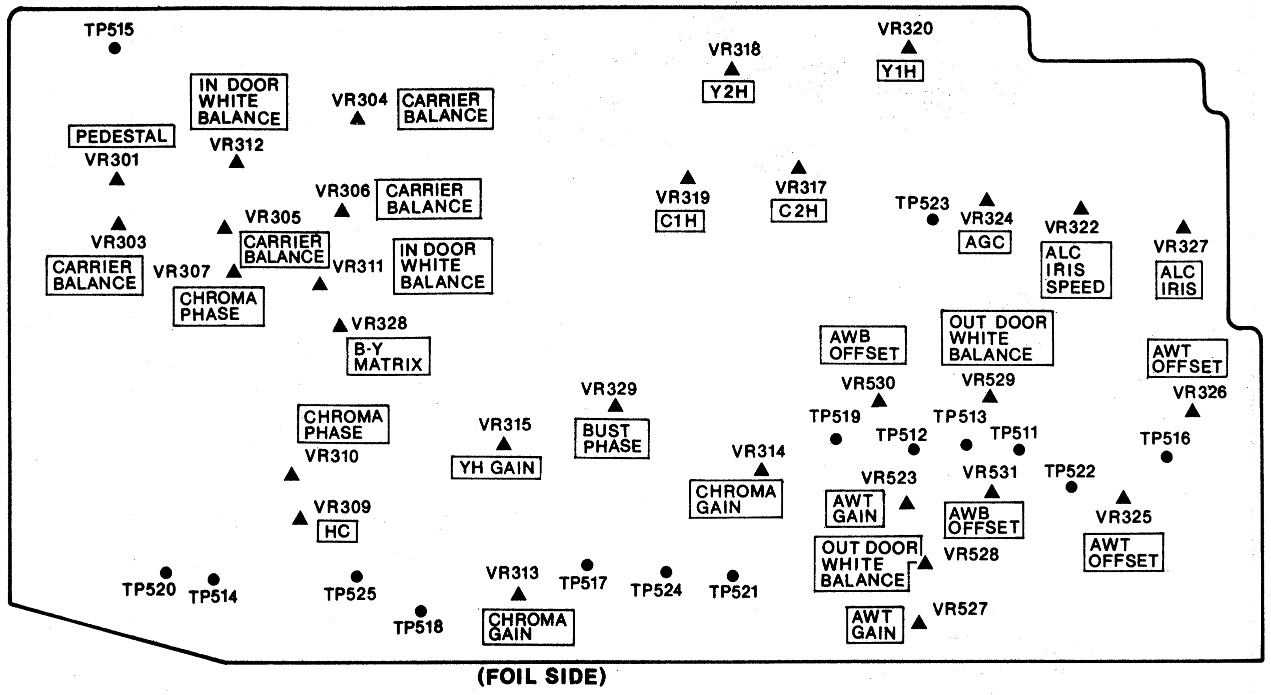
(1) Aim the camera at gray scale chart.
(2) Adjust the brightness control (VR905) so that the black and white bars in the EVF screen are the same as they are in the monitor TV screen.

LOCATION OF TEST POINTS & CONTROLS (1)

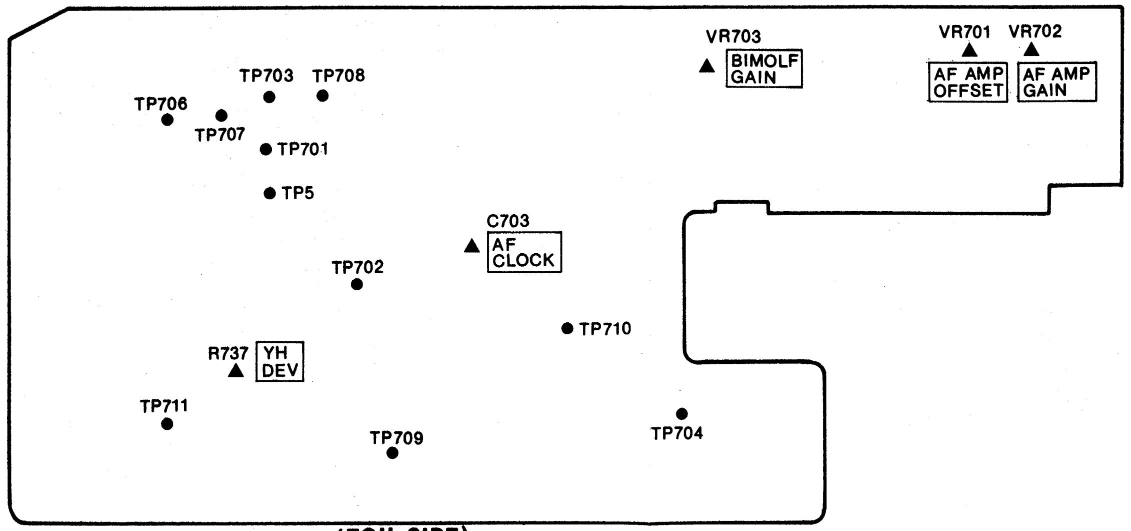
SENSOR C.B.A (CCD DRIVE)


VR203
OR BIAS
TP201
VR202
CDS OUT
C292
REF CLOCK
VR201
V SUB
(FOIL SIDE)

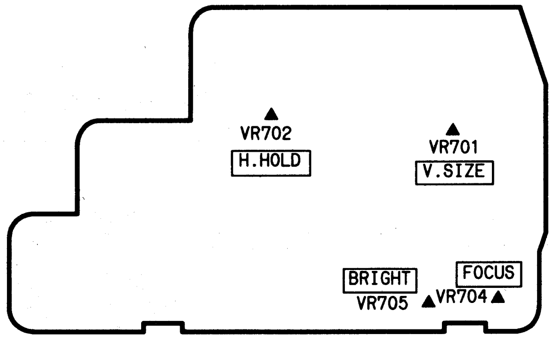
PROCESS C.B.A.


TP515
IN DOOR WHITE BALANCE
VR304
CARRIER BALANCE
VR318
Y2H
VR320
Y1H
PEDESTAL
VR301
VR312
VR306
CARRIER BALANCE
VR305
VR303
CARRIER BALANCE
VR307
CARRIER BALANCE
VR311
IN DOOR WHITE BALANCE
CHROMA PHASE
VR328
B-Y MATRIX
VR319
C1H
VR317
C2H
TP523
VR324
AGC
VR322
ALC IRIS SPEED
VR327
ALC IRIS
AWB OFFSET
OUT DOOR WHITE BALANCE
AWT OFFSET
VR530
VR529
VR326
CHROMA PHASE
VR310
VR315
YH GAIN
VR329
BUST PHASE
VR314
CHROMA GAIN
TP519
TP512
TP513
TP511
TP516
VR523
AWT GAIN
VR531
AWB OFFSET
TP522
VR325
AWT OFFSET
VR309
HC
OUT DOOR WHITE BALANCE
VR528
TP520
TP514
TP525
TP518
VR313
CHROMA GAIN
TP517
TP524
TP521
AWT GAIN
VR527
(FOIL SIDE)

AUTO FOCUS C.B.A.

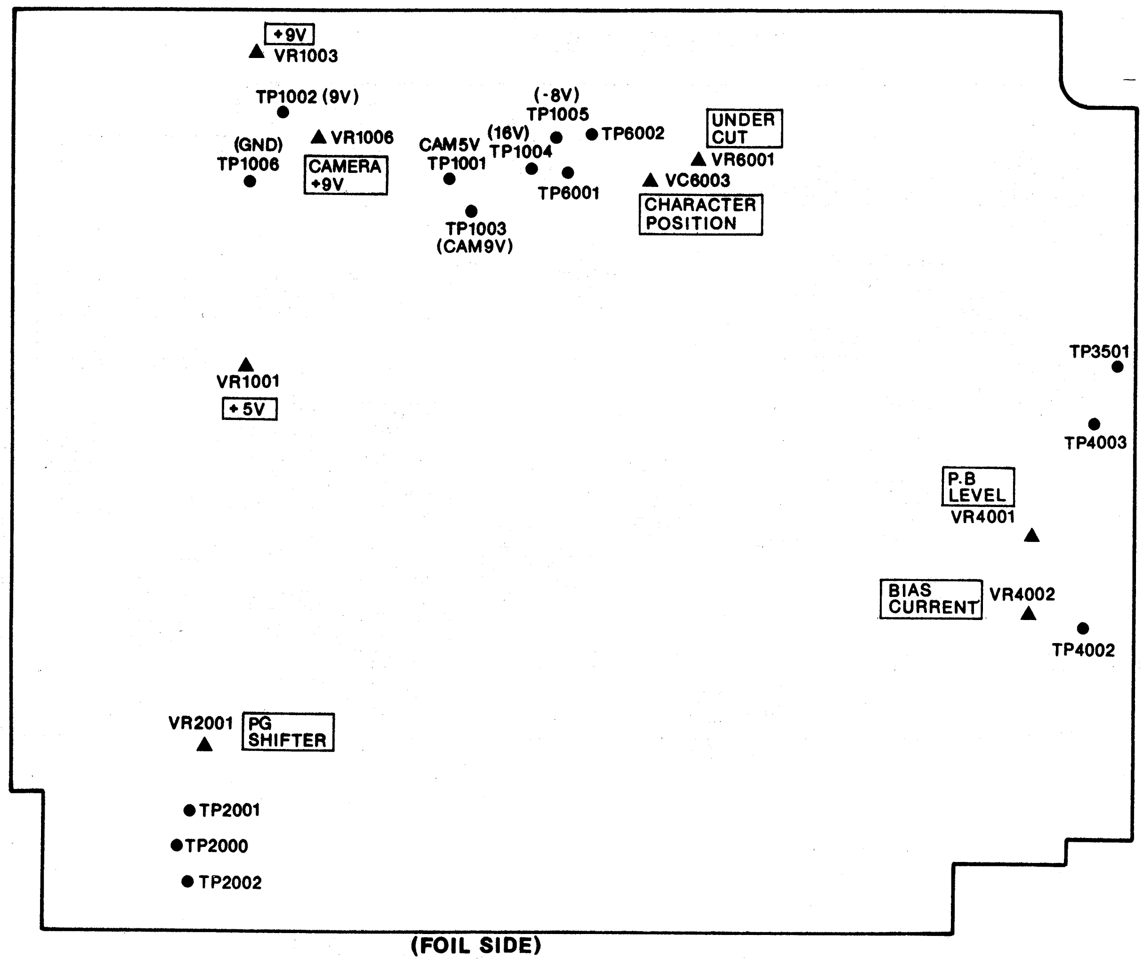

TP706
TP703
TP708
TP707
TP701
TP5
VR703
BIMOLF GAIN
VR701
VR702
AF AMP OFFSET
AF AMP GAIN
C703
AF CLOCK
TP702
TP710
R737
YH DEV
TP711
TP709
TP704
(FOIL SIDE)

E.V.F C.B.A


VR702
H.HOLD
VR701
V.SIZE
BRIGHT
VR705
FOCUS
VR704

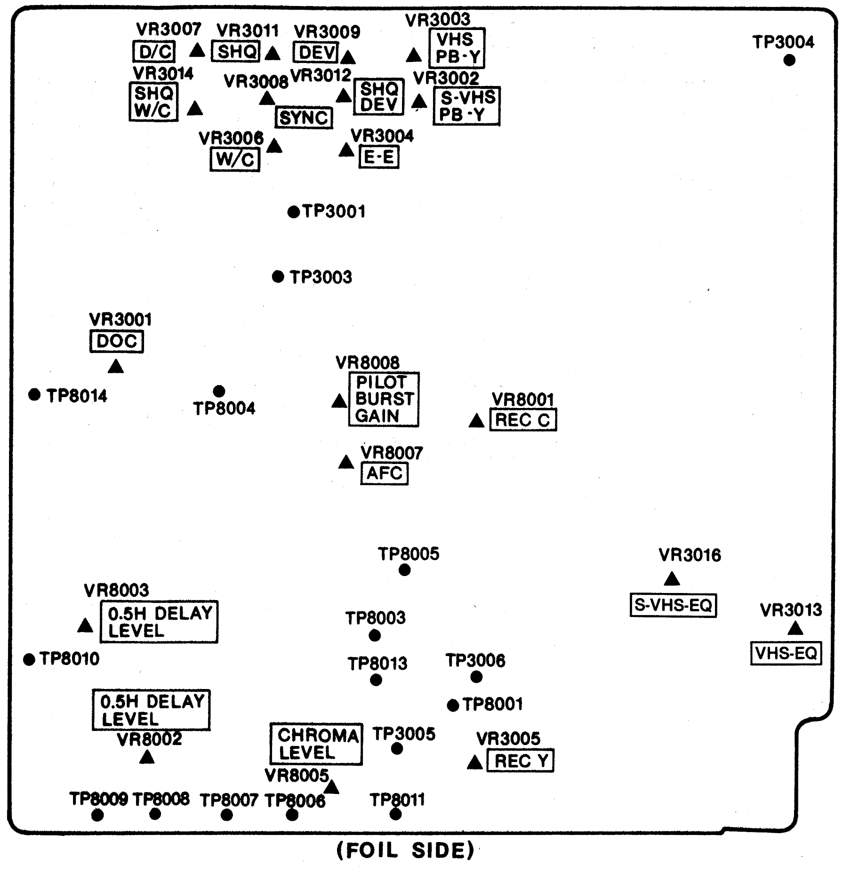
LOCATION OF TEST POINTS & CONTROLS (2)

MAIN C.B.A



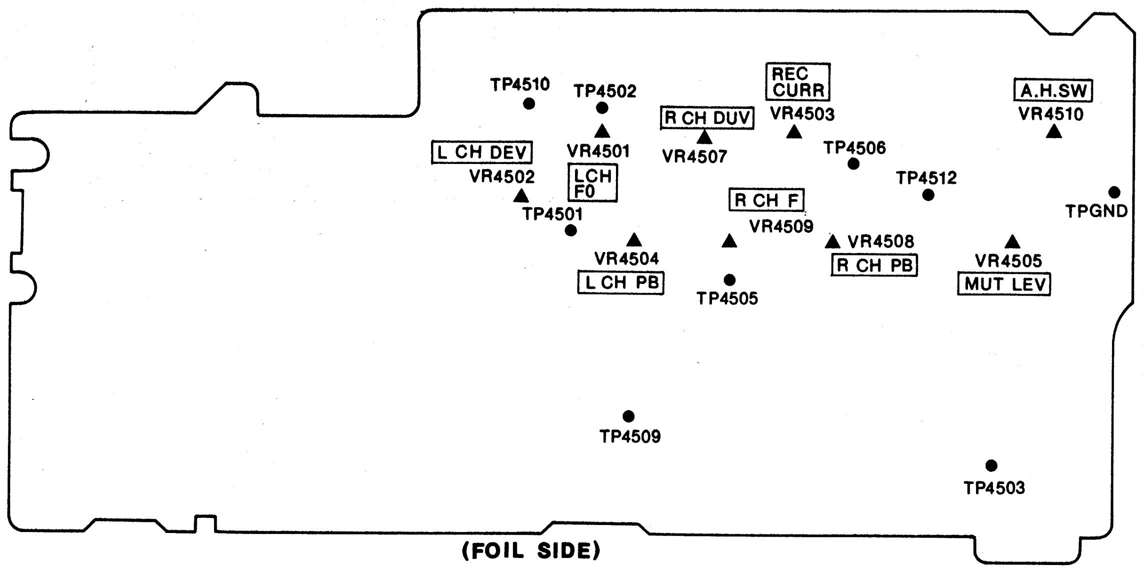
+9V
VR1003
TP1002 (9V)
(GND)
TP1006
VR1006
CAMERA
+9V
CAM5V
TP1001
(16V)
TP1004
(-8V)
TP1005
TP6002
TP6001
TP1003
(CAM9V)
UNDER
CUT
VR6001
VC6003
CHARACTER
POSITION
VR1001
+5V
TP3501
TP4003
P.B
LEVEL
VR4001
BIAS
CURRENT
VR4002
TP4002
VR2001
PG
SHIFTER
TP2001
TP2000
TP2002
(FOIL SIDE)

LUMINANCE & CHROMINANCE PACK C.B.A



VR3007
D/C
VR3011
SHQ
VR3009
DEV
VR3003
VHS
PB-Y
TP3004
VR3014
SHQ
W/C
VR3008
SYNC
VR3012
SHQ
DEV
VR3002
S-VHS
PB-Y
VR3006
W/C
VR3004
E-E
TP3001
TP3003
VR3001
DOC
TP8014
TP8004
VR8008
PILOT
BURST
GAIN
VR8001
REC C
VR8007
AFC
TP8005
VR3016
S-VHS-EQ
VR3013
VHS-EQ
VR8003
0.5H DELAY
LEVEL
TP8003
TP8010
TP8013
TP3006
TP8001
0.5H DELAY
LEVEL
VR8002
CHROMA
LEVEL
TP3005
VR3005
REC Y
VR8005
TP8009
TP8008
TP8007
TP8006
TP8011
(FOIL SIDE)

FM AUDIO C.B.A



TP4510
TP4502
REC
CURR
R CH DUV
VR4503
A.H.SW
VR4510
L CH DEV
VR4501
VR4507
TP4506
VR4502
LCH
F0
TP4512
R CH F
TPGND
TP4501
VR4509
VR4508
VR4504
VR4505
L CH PB
R CH PB
MUT LEV
TP4505
TP4509
TP4503
(FOIL SIDE)

2-4-3. ELECTRICAL ADJUSTMENT FOR VTR SECTION

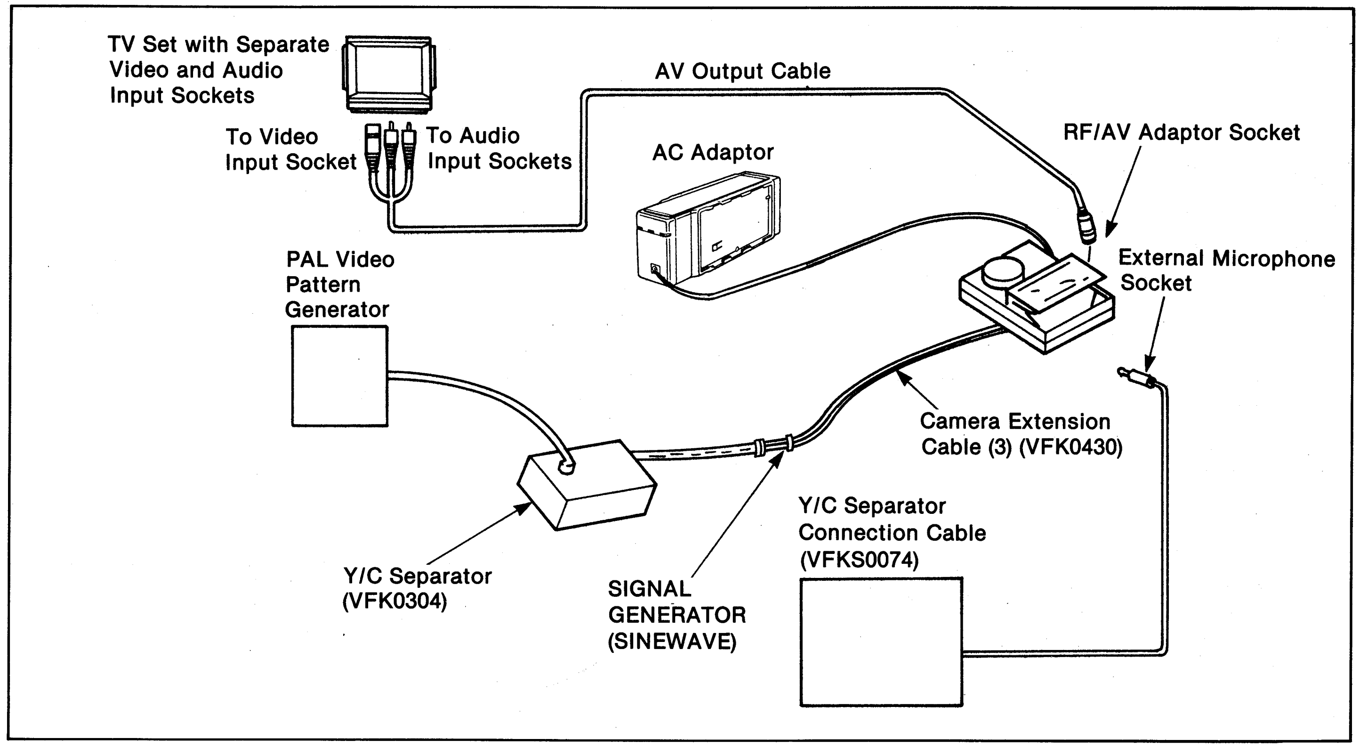
TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the VTR section of S-VHS-C Movie.

1. VTVM (Vacuum Tube Volt Meter)
   DVM (Digital Volt Meter)
   Voltage Range : 0.01～50V
2. Dual Trace Oscilloscope
   Voltage Range : 0.06～50V/div
   Frequency Range : 0～50MHz
   Probe : 10:1 or 1:1
3. Frequency counter
   Frequency Range : 0～10MHz
4. Signal Generator (Sinewave)
   Frequency Range : 0～10MHz
5. Video Sweep Generator
   Frequency Range : 0～10MHz
6. Colour Monitor TV
7. Plastic Tip Driver
8. VHS-C Alignment Tape (VFM8180H8PF)
9. S-VHS-C Blank Tape
10. VHS-C Blank Tape
11. Pattern Generator

PREPARATION

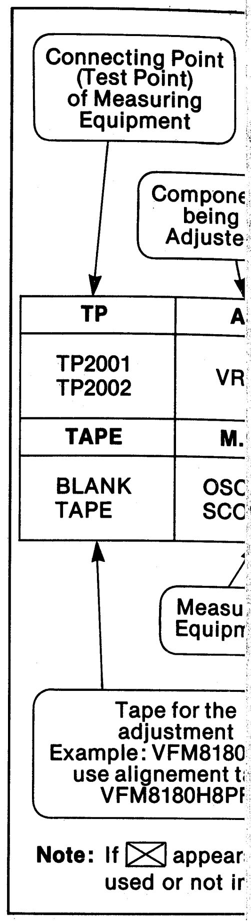
1. Remove the casing panels.
   (Refer to the disassemble method)
2. Connect the Y/C separator (VFK0304) to the extension cable (VFK0430) with Y/C separator connection cable (VFKS0074) and connect this extension cable (VFK0430) to connector P1002 on Main C.B.A.
3. Supply the video signal to the video circuit by using the Y/C separator (VFK0304) as shown in Fig. E1.
4. Supply the audio signal to audio circuit through the External Microphone Socket.



TV Set with Separate
Video and Audio
Input Sockets
To Video
Input Socket
To Audio
Input Sockets
AV Output Cable
AC Adaptor
RF/AV Adaptor Socket
PAL Video
Pattern
Generator
External Microphone
Socket
Camera Extension
Cable (3) (VFK0430)
Y/C Separator
Connection Cable
(VFKS0074)
Y/C Separator
(VFK0304)
SIGNAL
GENERATOR
(SINEWAVE)

Fig.E1

HOW TO READ T
PROCEDURES



Connecting Point
(Test Point)
of Measuring
Equipment
Compone
being
Adjuste
TP
A
TP2001
TP2002
VR
TAPE
M.
BLANK
TAPE
OSC
SCO
Measu
Equipn
Tape for the
adjustment
Example: VFM8180
use alignement t
VFM8180H8PI
Note: If ☒ appear
used or not ir

FOR TRIGGERING

To trigger the C
point is used.

H. rate : J3501-1 (
V. rate : TP2001 (H

Note:
Before the elec
as following
instructions in each

1. Tape Speed Selec
2. Tracking Control
3. S-VHS System

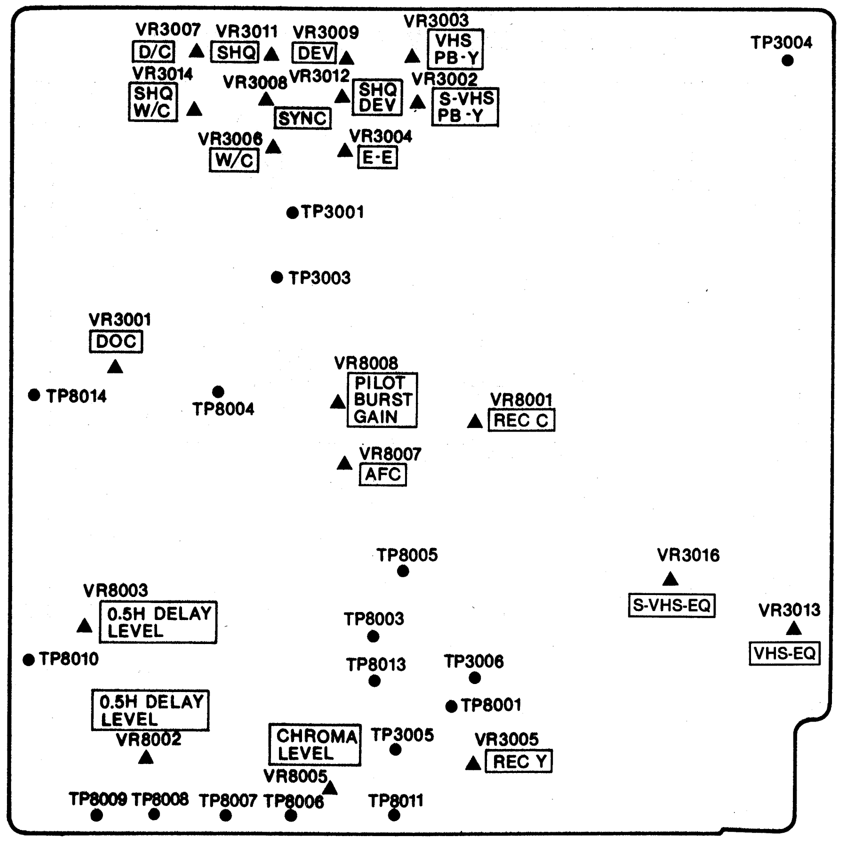
POWER SECTION

1. REG. 5V ADJUSTI

TP	AD
TP1001	VR1
TAPE	**M. I**
BLANK TAPE	D.V

CONTROLS (2)

LUMINANCE & CHROMINANCE PACK C.B.A


VR3007
D/C
VR3011
SHQ
VR3009
DEV
VR3003
VHS PB-Y
TP3004
VR3014
SHQ W/C
VR3008
SYNC
VR3012
SHQ DEV
VR3002
S-VHS PB-Y
VR3006
W/C
VR3004
E-E
TP3001
TP3003
VR3001
DOC
TP8014
TP8004
VR8008
PILOT BURST GAIN
VR8001
REC C
VR8007
AFC
TP8005
VR3016
S-VHS-EQ
VR3013
VHS-EQ
VR8003
0.5H DELAY LEVEL
TP8003
TP8010
TP8013
TP3006
TP8001
0.5H DELAY LEVEL
VR8002
CHROMA LEVEL
VR8005
TP3005
VR3005
REC Y
TP8009 TP8008 TP8007 TP8006
TP8011

(FOIL SIDE)

2-4-3. ELECTRICAL ADJUSTMENT FOR VTR SECTION

TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the VTR section of S-VHS-C Movie.

1. VTVM (Vacuum Tube Volt Meter)
   DVM (Digital Volt Meter)
   Voltage Range : 0.01~50V
2. Dual Trace Oscilloscope
   Voltage Range : 0.06~50V/div
   Frequency Range : 0~50MHz
   Probe : 10:1 or 1:1
3. Frequency counter
   Frequency Range : 0~10MHz
4. Signal Generator (Sinewave)
   Frequency Range : 0~10MHz
5. Video Sweep Generator
   Frequency Range : 0~10MHz
6. Colour Monitor TV
7. Plastic Tip Driver
8. VHS-C Alignment Tape (VFM8180H8PF)
9. S-VHS-C Blank Tape
10. VHS-C Blank Tape
11. Pattern Generator

PREPARATION

1. Remove the casing panels.
   (Refer to the disassemble method)
2. Connect the Y/C separator (VFK0304) to the extension cable (VFK0430) with Y/C separator connection cable (VFKS0074) and connect this extension cable (VFK0430) to connector P1002 on Main C.B.A.
3. Supply the video signal to the video circuit by using the Y/C separator (VFK0304) as shown in Fig. E1.
4. Supply the audio signal to audio circuit through the External Microphone Socket.

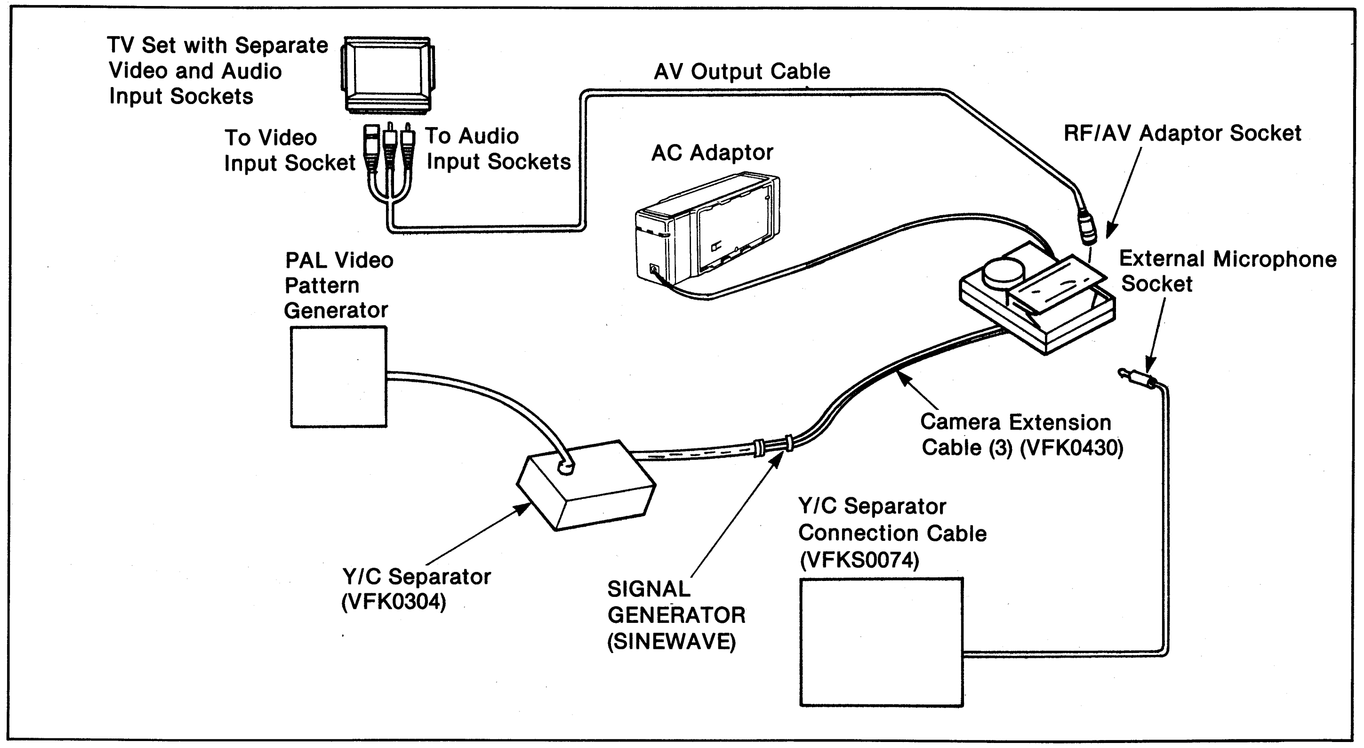
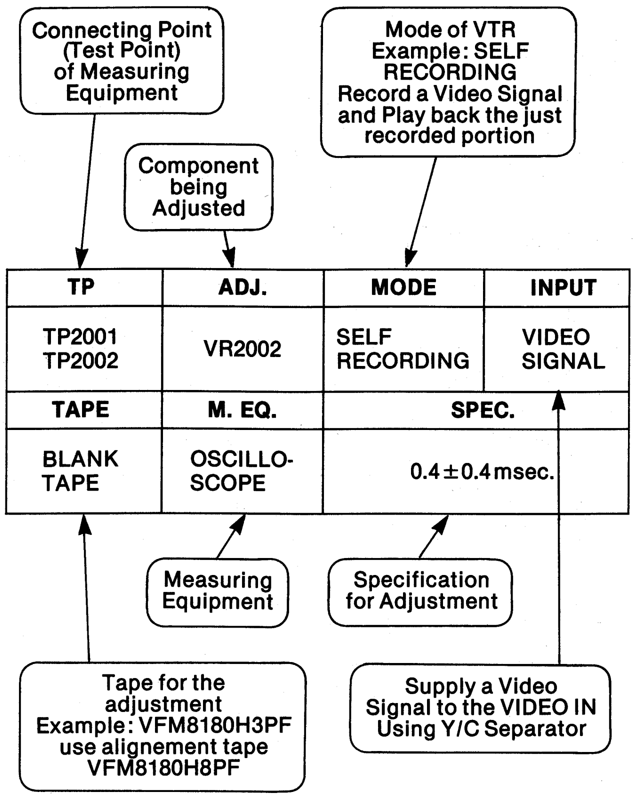

TV Set with Separate Video and Audio Input Sockets
AV Output Cable
To Video Input Socket
To Audio Input Sockets
AC Adaptor
RF/AV Adaptor Socket
PAL Video Pattern Generator
External Microphone Socket
Camera Extension Cable (3) (VFK0430)
Y/C Separator Connection Cable (VFKS0074)
Y/C Separator (VFK0304)
SIGNAL GENERATOR (SINEWAVE)

Fig.E1

HOW TO READ THE ADJUSTMENT PROCEDURES


Connecting Point (Test Point) of Measuring Equipment
Component being Adjusted
Mode of VTR Example: SELF RECORDING Record a Video Signal and Play back the just recorded portion
Measuring Equipment
Specification for Adjustment
Tape for the adjustment Example: VFM8180H3PF use alignement tape VFM8180H8PF
Supply a Video Signal to the VIDEO IN Using Y/C Separator

TP	ADJ.	MODE	INPUT
TP2001 TP2002	VR2002	SELF RECORDING	VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	0.4±0.4msec.	

Note: If ☒ appears in any block, this means it is not used or not important.

FOR TRIGGERING OF THE OSCILLOSCOPE

To trigger the Oscilloscope, the following test point is used.

H. rate : J3501-1 (video output)
V. rate : TP2001 (Head Switching signal)

Note:
Before the electrical adjustment, set the Unit as following conditions except for especial instructions in each adjustment item.

1. Tape Speed Selector ... SP position.
2. Tracking Control ... Centre FIX position.
3. S-VHS System Selector ... Auto position.

POWER SECTION

1. REG. 5V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1001	VR1001	REC/PLAY	☒
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	4.91±0.025V	

2. REG. 9V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1002	VR1003	CAMERA RECORDING	☒
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	8.2±0.05V	

3. CAMERA REG. 9V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1003	VR1002	REC/PLAY	☒
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	$8.6^{+0.07}_{-0.03}$V	

This adjustment should be always completed after REG. 5V ADJUSTMENT and REG. 9V ADJUSTMENT.

4. UNDER CUT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP6001	VR6001	REC/PLAY	☒
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE/ DC POWER SUPPLY/ D.V.M.	☒	

Note:
Do not connect AC Adaptor, connect a DC Power Supply to pin 2 (+) and pin 1 (−) of p1001, then supply the voltage 8.64 +− 0.05V.

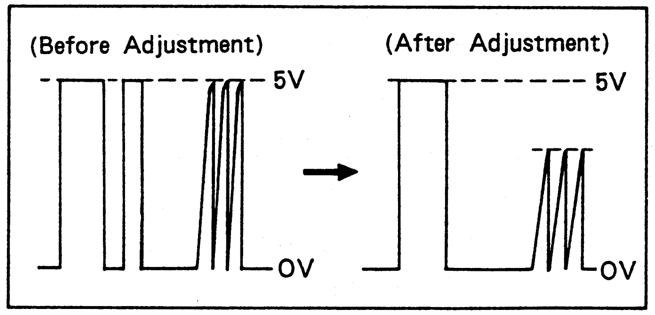


Fig.E2

SERVO SECTION

5. PG SHIFTER ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP2001 J3501-1	VR2001	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE (VFM8180H8PF)	OSCILLO-SCOPE	6.5H±0.5H	

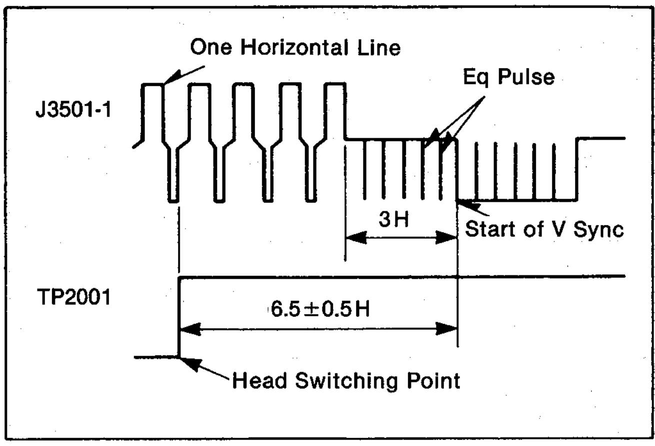


Fig.E3

LUMINANCE & CHROMINANCE SECTION

6. E-E LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
J3501-1	VR3004	STOP	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
	OSCILLO-SCOPE	A=1.0±0.05Vp-p B=0.6±0.1Vp-p	

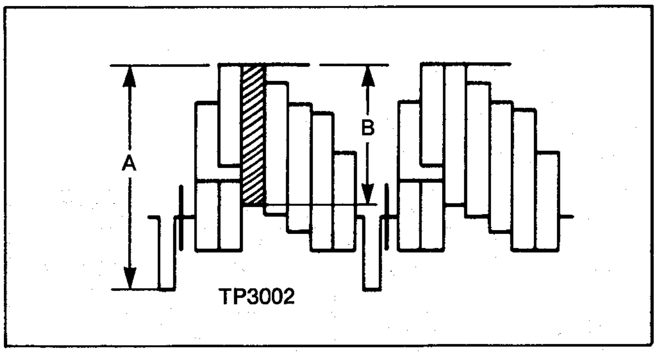


Fig.E4

7. SUB EMPHASIS/LIMITER BALANCE ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3004	VR3015	REC. PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	3.2±0.1V	

1. Connect the 16V 10uF capacitor between P3504−1 and GND.
2. Connect the D.V.M to TP3004 and adjust VR3015 so that the reading of D.V.M is 3.2 +− 0.1V.

8. AFC ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP8004	VR8007	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	FREQ. COUNTER	623±15kHz	

1. Connect the jumper wire among TP8002, TP8003 and TP8001 (GND).
2. Connect the frequency counter to TP8004.
3. Adjust the VR8007 so that frequency become 623 +− 15KHz.

9. SYNC TIP FREQUENCY AND DEVIATION ADJUSTMENT

9-1. SYNC TIP FREQUENCY ADJUSTMENT
《VHS MODE》

TP	ADJ.	MODE	INPUT
TP3006	VR3008	REC. PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	FREQ. COUNTER	3.8MHz±0.05MHz	

《S-VHS MODE》

TP	ADJ.	MODE	INPUT
TP3006	VR3011	REC. PLAY	
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	FREQ. COUNTER	5.4MHz±0.05MHz	

9-2. DEVIATION ADJUSTMENT
《VHS MODE》

TP	ADJ.	MODE	INPUT
P5003-2 (HOT) P5003-1 (GND)	VR3009	REC. PLAY	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE/ FREQ. COUNTER	INNER BEAT IS MAXIMUM	

1. Supply colour bar video signal to video circuit through Y/C separator. (Refer to preparation)
2. Connect a signal generator (sine wave) to TP3006 on Main C.B.A. and set frequency and output level of it as follows.
   Frequency : 4.8MHz +− 0.05MHz
   Output : 0.1Vp−p
3. Connect the oscilloscope to P5003−2 (HOT) and P5003−1 (GND) and it uses a trigger at TP2001.
4. Adjust VR3009 so that inner beat at White portion of colour bar becomes maximum as shown in Fig. E5, Fig. E6.

《S-VHS MODE》

TP	ADJ.	MODE	INPUT
P5003-2 (HOT) P5003-1 (GND)	VR3012	REC. PLAY	COLOUR BAR (B/W MODE)
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	OSCILLO-SCOPE/ FREQ. COUNTER	INNER BEAT IS MAXIMUM	

1. Set the unit to S−VHS mode and REC.PLAY mode.
2. Supply colour bar video signal (black & white signal mode) to video circuit through Y/C separator. (refer to preparation).
3. Connect a signal generator (sine wave) to TP3006 on Main C.B.A. and set the frequency and output level of it as follows.
   Frequency : 7.0MHz +− 0.05MHz
   Output : 0.1Vp−p
4. Connect the oscilloscope to P5003−2 (HOT) and P5003−1 (GND) and it uses a trigger at TP2001.
5. Adjust VR3012 so that inner beat at white portion of colour bar becomes maximum as shown in Fig. E5, Fig. E6.

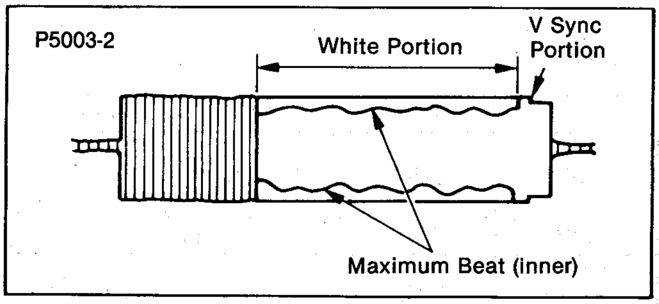


Fig.E5

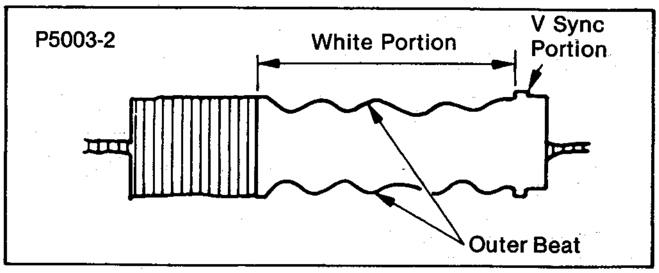


Fig.E6

10. WHITE AND DARK CLIP ADJUSTMENT
《VHS MODE》

TP	ADJ.	MODE	INPUT
TP3001	VR3006 VR3007	REC	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	A=175±5% B=145±5%	

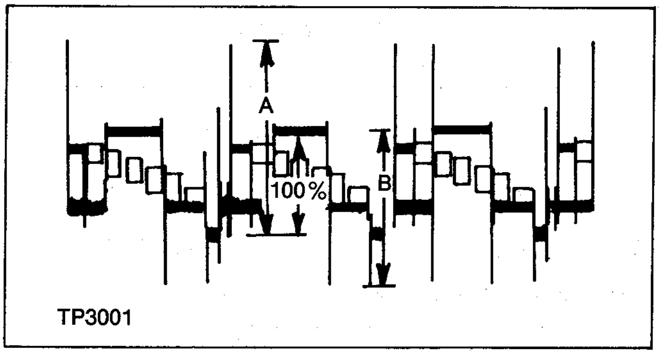


Fig.E7

1. Set the unit to S−VHS mode and REC.PLAY mode.
2. Supply colour bar signal to video circuit connector through Y/C separator. (refer to preparation).
3. Adjust VR3006, VR3007 so that the level of waveform is shown in Fig. E5.

11. WHITE CLIP ADJUSTMENT
《S-VHS MODE》

TP	ADJ.	MODE	INPUT
TP3001	VR3014	REC. PLAY	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	OSCILLO-SCOPE	A=205±5%	

1. Set the unit to REC.PLAY mode.
2. Supply colour bar signal to VIDEO circuit through Y/C separator (refer to preparation).
3. Adjust VR3014 so that the level of waveform is shown in Fig. E8

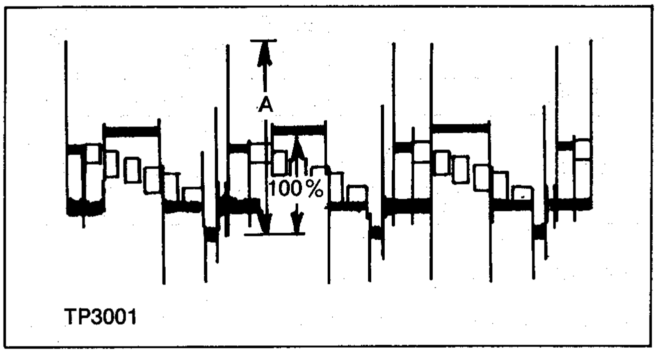


Fig.E8

12. RECORDING CURRENT ADJUSTMENT

12-1. REC CHROMA LEVEL ADJUSTMENT 《VHS MODE》

TP	ADJ.	MODE	INPUT
P5003-2 (HOT) P5003-1 (GND)	VR8001	REC/PLAY (LP)	COLOUR BAR (W/WHITE WINDOW)
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	20±2mVp-p	

1. Set the unit to VHS mode and REC.PLAY with LP mode.
2. Connect the Oscilloscope to P5003−2 (HOT) and P5003−1 (GND).
3. Eliminate Luminance signal by turning VR3005.
4. Adjust VR8001 so that Chroma level become 20 +− 2mVp−p.

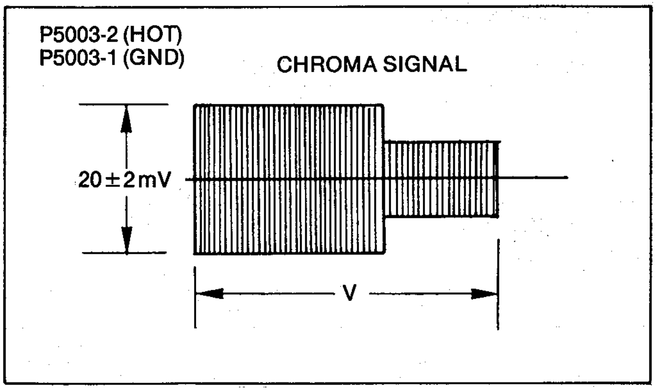


Fig.E9

12-2. LUMINANCE RECORDING CURRENT ADJUSTMENT 《VHS MODE》

TP	ADJ.	MODE	INPUT
P5003-2 (HOT) P5003-1 (GND)	VR3005	REC/PLAY (LP)	VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	88mV±2mVp-p	

1. Set the unit to VHS mode and REC.PLAY with LP mode.
2. Supply colour bar video signal to video circuit through Y/C separator. (refer to preparation)
3. Adjust VR3005 to 88mV +− 2mVp−p.

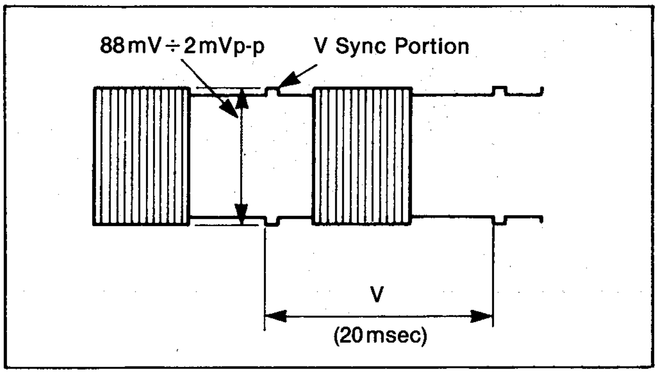


Fig.E10

13. LINE NOISE CANCEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3008	VR3001	SELF RECORDING (VHS MODE)	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	Less than 16mVp-p	

1. Record the video signal. (VHS MODE)
2. Connect the oscilloscope to TP3003.
3. Playback just recorded portion.
4. Adjust VR3003 so that level between sync and white 100% become less than 16mVp−p.

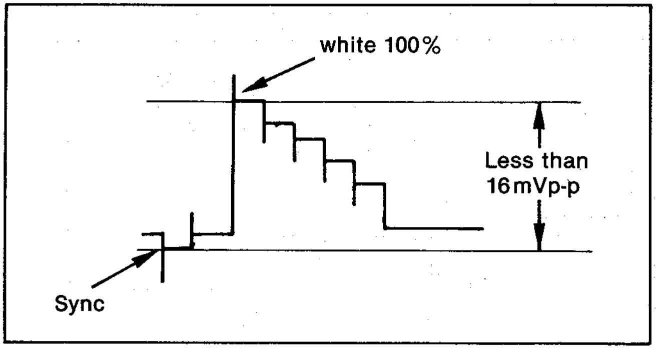


Fig.E11

14. VIDEO PLAYBACK LEVEL ADJUSTMENT 《VHS MODE》

TP	ADJ.	MODE	INPUT
J3501-1	VR3003	SELF RECORDING (VHS MODE)	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLACK TAPE	OSCILLO-SCOPE	$A=1.0\pm0.05$Vp-p $B=0.5\pm0.15$Vp-p	

1. Record the colour bar signal.
2. Connect the oscilloscope to J3501−1.
3. Adjust the VR3003 so that level become A = 1.0 +− 0.05Vp−p, B = 0.5 +− 0.15Vp−p.

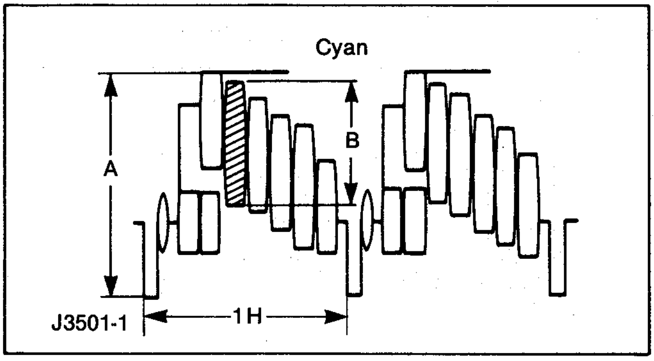


Fig.E12

15. S-VHS VIDEO PLAYBACK LEVEL ADJUSTMENT 《S-VHS MODE》

TP	ADJ.	MODE	INPUT
J3501-1	VR3002	SELF RECORDING	COLOUR BAR (B/W SIG. MODE)
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLACK TAPE	OSCILLO-SCOPE	A: 1.0 ± 0.05Vp-p B: 0.5 ± 0.15Vp-p	

1. Set the unit to S−VHS mode.
2. Play back the just recorded portion.
3. Connect the scope to J3501−1.
4. Adjust so that the level become A = 1.0 +− 0.05Vp−p, B = 0.5 +− 0.15Vp−p.

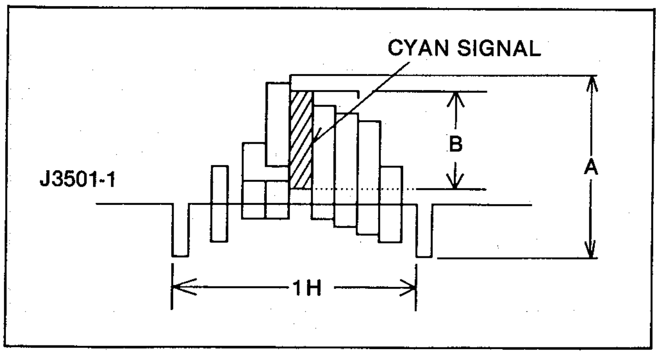


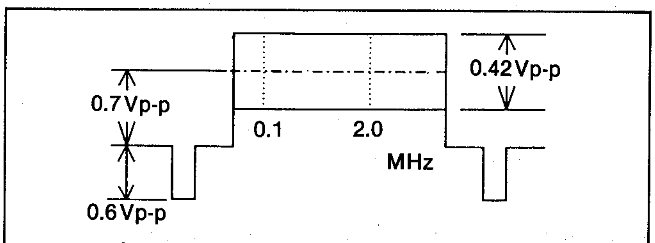
Fig.E13

16. HEAD AMP FREQUENCY RESPONCE ADJUSTMENT 《VHS MODE》

TP	ADJ.	MODE	INPUT
J3501-1	VR3013	SELF RECORDING	VIDEO SWEEP SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	VIDEO SWEEP/ OSCILLO-SCOPE	A: 0 ± 1dB (90∼110%)	

Note: Edit switch must be off.

1. Set the sweep generator output as shown below.



CONDITIONS: 1. BURST SIGNAL OFF
2. 75 ohm TERMINATED

Fig.E14

2. Supply the sweep signal to video circuit through the Y/C separator.
3. Record the sweep signal for a few minutes.
4. Play back the just recorded portion.
5. Adjust VR3013 so that the level at 2MHz (A) becomes within specification comparing with the level at 0.1MHz as shown in FIG. E15.

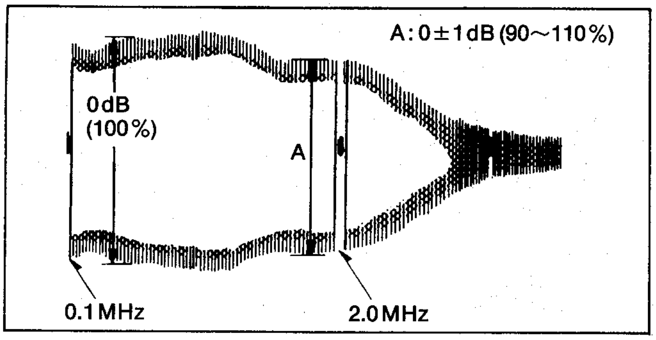


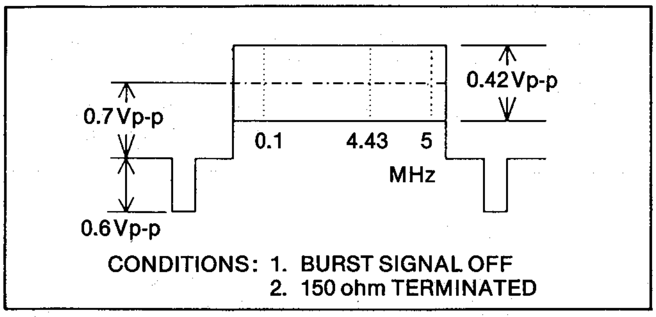
Fig.E15

17. HEAD AMP FREQUENCY RESPONCE ADJUSTMENT 《S-VHS MODE》

TP	ADJ.	MODE	INPUT
J3501-1	VR3016	SELF RECORDING	VIDEO SWEEP SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	VIDEO SWEEP/ OSCIILLO-SCOPE	$A=-6\pm1$dB (45∼56%)	

Note: Edit switch must be off.

1. Set the sweep generator output as shown below.


0.7Vp-p
0.42Vp-p
0.1
4.43
5
MHz
0.6Vp-p

CONDITIONS: 1. BURST SIGNAL OFF
2. 150 ohm TERMINATED

Fig.E16

2. Supply the sweep signal to video circuit through the Y/C separator.
3. Record the sweep signal for a few minutes.
4. Play back just recorded portion.
5. Adjust VR3016 so that the level at 4MHz (A) becomes within, specification comparing with the level at 0.1MHz as shown below.

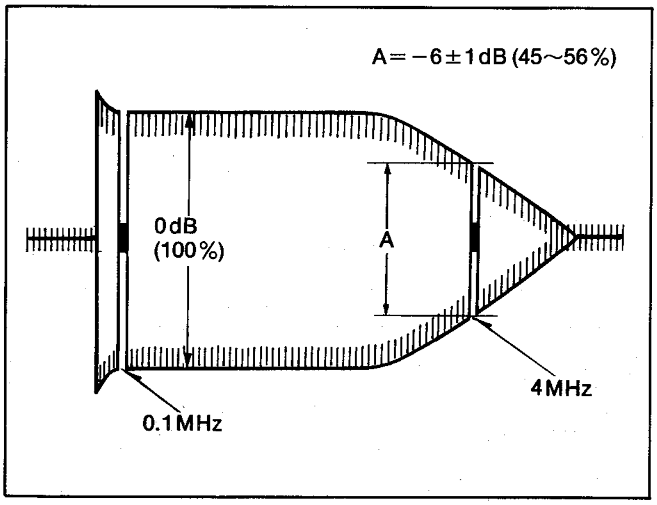

A=−6±1dB (45∼56%)
0dB
(100%)
A
4MHz
0.1MHz

Fig.E17

18. PILOT BURST LEVEL ADJUSTMENT 《S-VHS MODE》

TP	ADJ.	MODE	INPUT
TP8012	VR8008	REC. PLAY	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	OSCILLO-SCOPE	A : B=5∼6 : 5	

1. Record the video signal.
2. Connect the oscilloscope to TP8012.
3. Adjust VR8008 so that the ratio of level between pilot burst signal and burst signal becomes 5.5 +− 0.5 : 5.

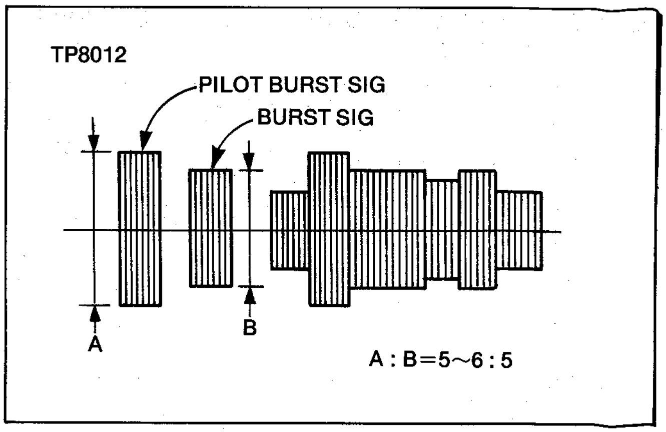

TP8012
PILOT BURST SIG
BURST SIG
A
B
A : B=5∼6 : 5

Fig.E18

19. 0.5H DELAYED LUMINANCE OUTPUT LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
J3501-1	VR8003	SELF RECORDING	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	FLICKER LEVEL IS MINIMIZED AND LUMI LEVEL IS 1.0±0.1Vp-p.	

1. Supply the colour bar signal to video circuit through Y/C separator.
2. Playback the just recorded portion.
3. Place the unit to "STILL" mode.
4. Adjust VR8003 so that the flicker level is minimized.
5. Confirm the luminance level becomes 1.0 +− 0.1Vp−p.

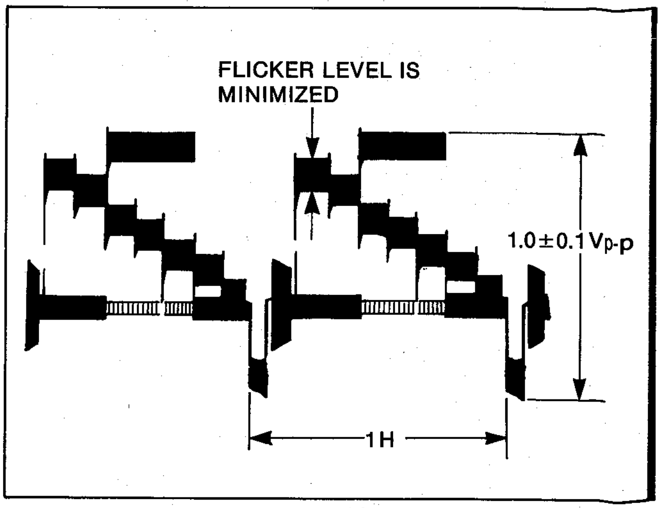

FLICKER LEVEL IS MINIMIZED
1.0±0.1Vp-p
1H

Fig.E19

20. 0.5H DELAYED CHROMINANCE OUTPUT LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP8011	VR8002	SELF RECORDING	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	CYAN LEVEL=1.0±0.15Vp-p	

1. Supply the colour bar signal to video circuit through Y/C separator.
2. Playback the just recorded portion.
3. Adjust VR8002 so that the cyan level is 1.0 +- 0.15Vp-p.

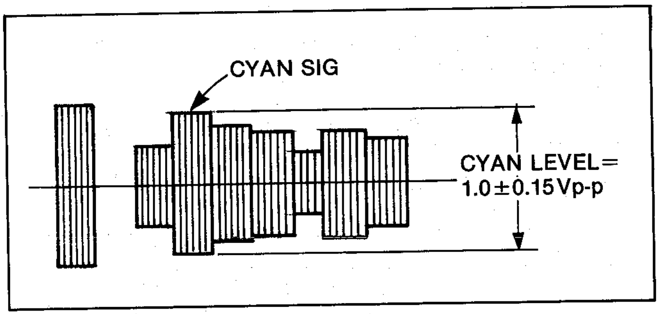


Fig.E20

21. JUMP CORRECTION AFC ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP8008	VR8004	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	FREQUENCY COUNTER	22.2kHz±100Hz	

1. Connect the 10Kohm resistor between TP8009 and REG.5V (P3001−14).
2. Adjust VR8004 so that the reading of frequency counter is 22.2KHz +- 100Hz.

22. REVERSED PHASE VIDEO OUTPUT LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
J3501-1	VR8005	SELF RECORDING	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	A−B=0±30mVp-p	

1. Supply the colour bar signal to video circuit through Y/C separator.
2. Playback the just recorded portion.
3. Confirm the A level when the unit places the playback mode.
4. Confirm the B level when the unit places the playback mode and connecting jumper wire among TP8006, TP8007 and GND.
5. Adjust VR8005 so that the level difference between A and B becomes 0 +- 30mVp−p.

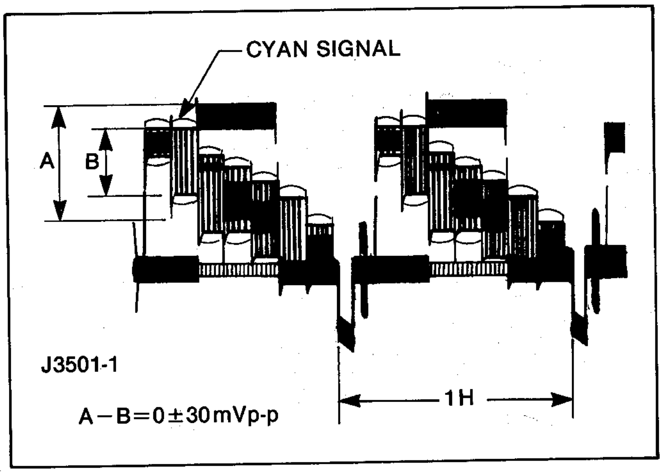


Fig.E21

AUDIO SECTION

23. AUDIO BIAS CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4002 (HOT) TP4003 (GND)	VR4002	REC/PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	2.7mVrms±0.1mVrms	

24. AUDIO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
LINE OUT (TP4001)	VR4001	SELF RECORDING	1kHz AUDIO −70dB SIGNAL/ VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	SIGNAL GENERA-TOR/D.V.M.	EE LEVEL=−8.0±2dB PB LEVEL= EE LEVEL ±0.5dB	

1. Supply the audio signal (1KHz/−70dB sine−wave) to audio circuit through the MIC Input Jack.
2. Set the audio select SW to Normal position.
3. Adjust VR4001 so that the level is EE Level (−8 +- 2dB) +- 0.5dB.

SYSTEM CONTROL SECTION

25. CHARACTER POSITION ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIEW FINDER	C6003	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	VIEW FINDER	CHARACTER IS CENTRE	

1. Connect the EVF unit to the VTR unit.
2. Display the battery remaining indicator and counter number on the EVF.
3. Adjust the osc control (C6003) so that the character position is shown below.

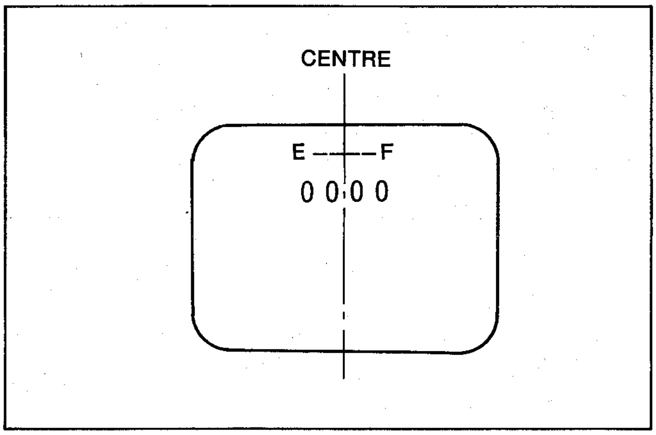


Fig.E22

Hi-Hi AUDIO SECTION

26. Hi-Fi AUDIO RECORDING CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
P5503-2 (HOT) P5503-1 (GND)	VR4503	RECORDING	
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	OSCILLO-SCOPE	220+−5mVp-p	

1. Connect the OSCILLOSCOPE to P5503−2 (HOT) and P5503−1 (GND).
2. Adjust VR4503 so that the Audio recording current become 220 +− 5mVp−p as shown below.

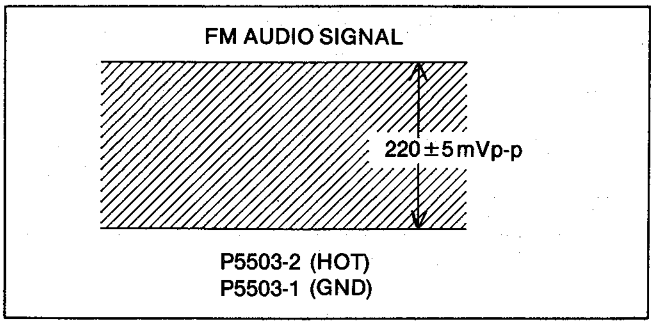


Fig.E23

27. AUDIO HEAD SWITCHING SHIFTER ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4506 TP2001	VR4510	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE VFM8180H8PF	OSCILLO-SCOPE	$T=T2-\frac{(T2-T1)}{2}$ msec.	

1. Play back the alignment tape (VFM8180H8PF).
2. Connect the oscilloscope to TP4511 and TP2001.
3. Play back the just recorded portion.
4. Adjust VR4510 while listening to the stereo playback sound.
   1. Confirm the "T2" time when the abnormal sound just occurs during turning clockwise on VR4510.
   2. Confirm the "T1" time when the abnormal sound just occurs during turning counter clockwise on VR4510.
   3. Adjust VR4510 so that the falling edge "T" of Audio H.SW pulse becomes the center portion of the both "T2" and "T1".

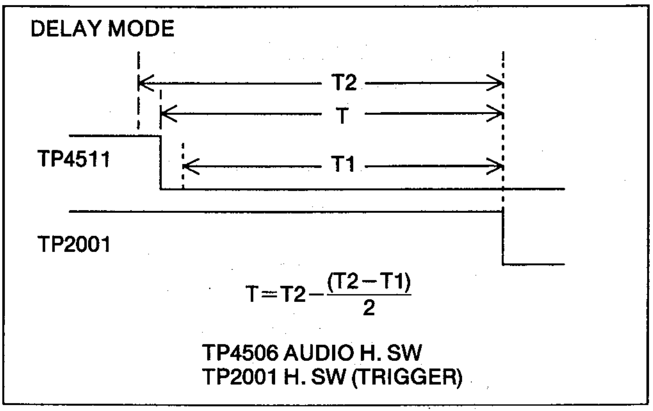


Fig.E24

28. AUDIO MUTING ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4507	VR4505	SELF RECORDING	1kHz, −10dB (316mVp-p) AUDIO SIG.
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	DC LEVEL=2V	

Note1

Before this adjustment, Tape interchangeability Adjustment must be always completed.

Note2

To achieve this adjustment, the luminance recording current adjustment should be performed as follows.

First connect the oscilloscope to P5003−2 (HOT) and P5003−1 (GND) and then adjust VR3005 for 115mVp−p (refer to Luminance Recording Current Adjustment [Item:12]).

After this adjustment, the luminance recording current must be returned to original position again.

1. Set the Audio Select SW to "STEREO" position.
2. Play back the just recorded portion.
3. Connect the oscilloscope to TP4507.
4. Preadjust VR4505 until the DC voltage is changed into low level (Approx. 0V) at TP4507.
5. Then slowly adjust VR4505 so that the DC voltage comes at 2V as shown below.

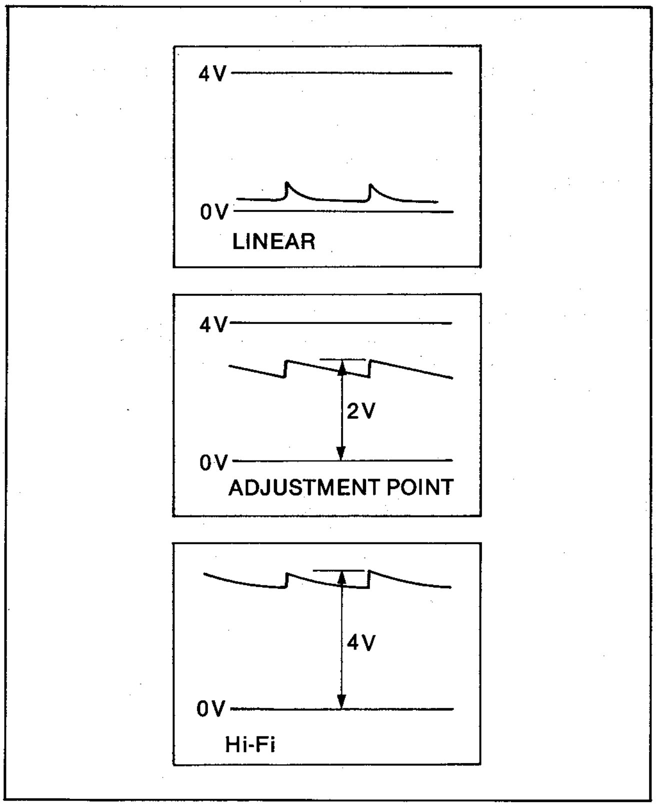


Fig.E25

29. Hi-Fi AUDIO CARRIER FREQUENCY ADJUSTMENT

TP	ADJ.	MODE	INPUT
IC4502-3 (L) IC4502-30 (R)	VR4501 (L) VR4509 (R)	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	FREQUENCY COUNTER	1400±10kHz (L) 1800±10kHz (R)	

30. AUDIO DEVIATION ADJUSTMENT

TP	ADJ.	MODE	INPUT
IC4502-5 (L) IC4502-28 (R)	VR4502 (L) VR4507 (R)	REC. PLAY	1kHz, −6dB (500mVp-p) AUDIO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	SIGNAL GENERATOR/ D.V.M.	160mVp-p	

1. Set the output(600−ohm Terminated) of the Signal generator to 1KHz and −6dB(500mVp−p), and supply it through the MIC Input Jack.
2. Adjust VR4502 to 160mVp−p at IC4502−5 on HiFi AUDIO C.B.A. for L−Channel.
3. Adjust VR4507 to 160mVp−p at IC4502−28 on HiFi AUDIO C.B.A. for R−Channel.

NOTE:

Audio signal output(1KHz/−6dB:500mVp−p) should be terminated by 600−ohm.

31. AUDIO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
J3501-7 (L) J3501-8 (R)	VR4504 (L) VR4508 (R)	SELF RECORDING	SIGNAL GENERATOR (1kHz, −10dB)/ VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	SIGNAL GENERATOR/ V.T.V.M	E-E LEVEL=−8±−2dB (300mVrms~500mVrms) PLAYBACK LEVEL= E-E LEVEL ±0.05dB (±20mVrms)	

Note:

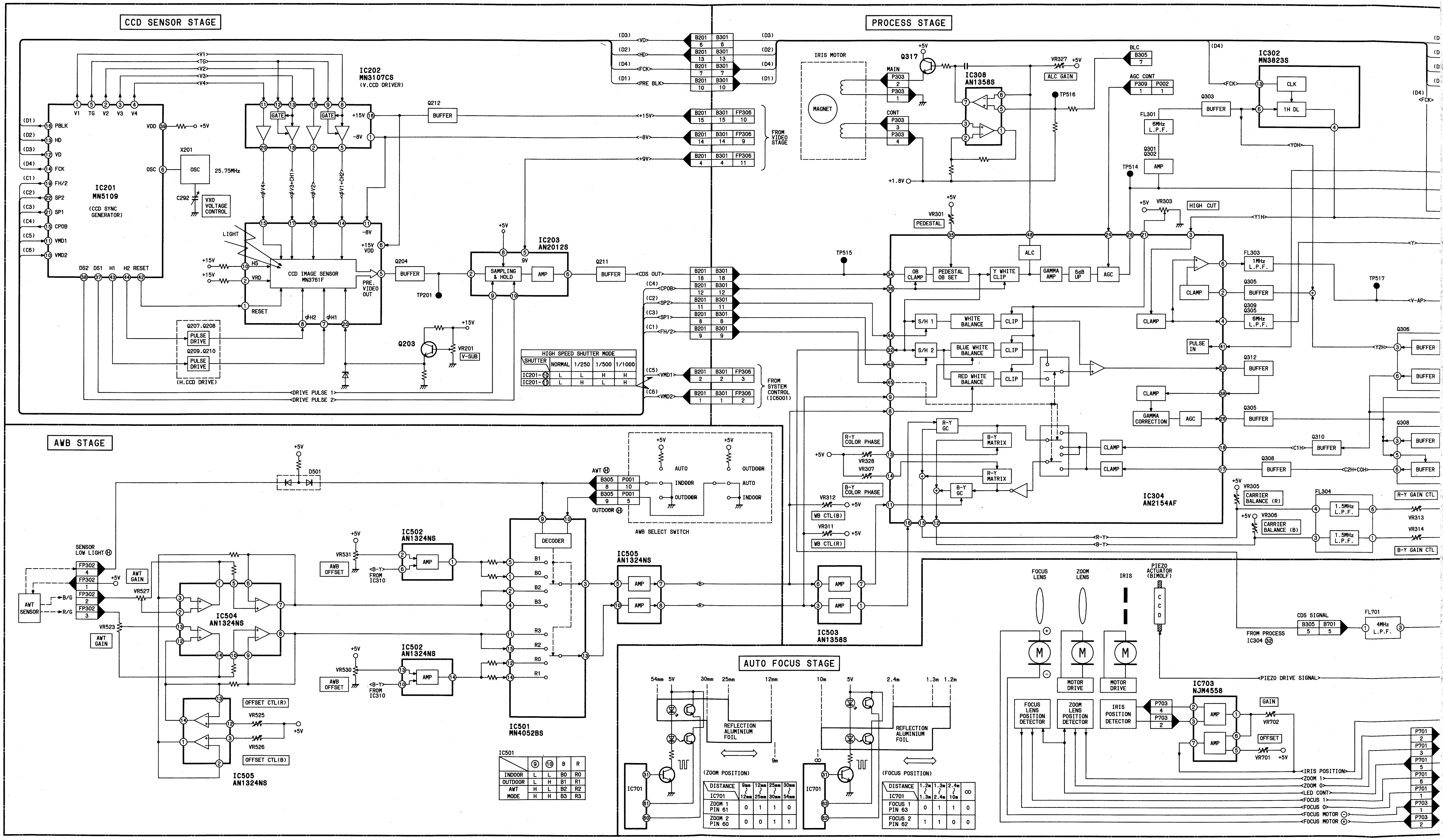
Before this adjustment, Tape Interchangeability Adjustment must be completed.

1. Play back the just recorded portion.
2. Adjust VR4504 and VR4508 volumes respectively so that the level of the playback becomes E−E level +− 0.5dB (+−20mVrms).

SECTION 3

BLOCK DIAGRAMS & SCHEMATIC DIAGRAMS

3-1. CAMERA STAGE BLOCK DIAGRAM


CCD SENSOR STAGE
PROCESS STAGE
AWB STAGE
AUTO FOCUS STAGE
IC201
MN5109
(CCD SYNC GENERATOR)
PBLK
HD
VD
FCK
FH/2
SP2
SP1
CPOB
VMD1
VMD2
VDD
OSC
DS2 DS1 H1 H2 RESET
V1 TG V2 V3 V4
X201
OSC
25.75MHz
C292
VXO VOLTAGE CONTROL
IC202
MN3107CS
(V.CCD DRIVER)
GATE
GATE
+15V
-8V
Q212
BUFFER
LIGHT
CCD IMAGE SENSOR
MN3761F
PRE. VIDEO OUT
RESET
ϕH2
ϕH1
Q207,Q208
PULSE DRIVE
Q209,Q210
PULSE DRIVE
(H.CCD DRIVE)
Q204
BUFFER
TP201
Q203
VR201
V-SUB
IC203
AN2012S
SAMPLING & HOLD
AMP
9V
Q211
BUFFER
CDS OUT
DRIVE PULSE 1
DRIVE PULSE 2
FROM VIDEO STAGE
FROM SYSTEM CONTROL (IC6001)
B201
B301
FP306
IRIS MOTOR
MAGNET
MAIN
CONT
Q317
IC308
AN1358S
+1.8V
VR327
ALC GAIN
TP516
BLC
B305
AGC CONT
P309
P002
FL301
6MHz L.P.F.
Q301 Q302
AMP
TP514
Q303
BUFFER
IC302
MN3823S
CLK
1H DL
VR301
PEDESTAL
TP515
OB CLAMP
PEDESTAL OB SET
Y WHITE CLIP
ALC
GAMMA AMP
6dB UP
AGC
VR303
HIGH CUT
FL303
1MHz L.P.F.
Q305
BUFFER
CLAMP
Q309 Q305
6MHz L.P.F.
TP517
S/H 1
S/H 2
WHITE BALANCE
BLUE WHITE BALANCE
RED WHITE BALANCE
CLIP
PULSE IN
Q306
BUFFER
Q312
BUFFER
CLAMP
GAMMA CORRECTION
AGC
R-Y GC
R-Y COLOR PHASE
B-Y MATRIX
R-Y MATRIX
B-Y GC
B-Y COLOR PHASE
VR328
VR307
VR312
WB CTL(B)
VR311
WB CTL(R)
CLAMP
IC304
AN2154AF
Q310
BUFFER
Q308
BUFFER
VR305
CARRIER BALANCE (R)
VR306
CARRIER BALANCE (B)
FL304
1.5MHz L.P.F.
R-Y GAIN CTL
VR313
VR314
B-Y GAIN CTL
D501
AWT
OUTDOOR
AUTO
INDOOR
AWB SELECT SWITCH
B305
P001
SENSOR LOW LIGHT
FP302
AWT SENSOR
B/G
R/G
AWT GAIN
VR527
VR523
IC504
AN1324NS
IC502
AN1324NS
VR531
AWB OFFSET
FROM IC310
AMP
VR530
IC501
MN4052BS
DECODER
B1 B0 B2 B3 R3 R2 R0 R1
IC505
AN1324NS
OFFSET CTL(R)
VR525
VR526
OFFSET CTL(B)
IC503
AN1358S
FOCUS LENS
ZOOM LENS
IRIS
PIEZO ACTUATOR (BIMOLF)
MOTOR DRIVE
FOCUS LENS POSITION DETECTOR
ZOOM LENS POSITION DETECTOR
IRIS POSITION DETECTOR
P703
IC703
NJM4558
GAIN
VR702
OFFSET
VR701
PIEZO DRIVE SIGNAL
CDS SIGNAL
B305
B701
FROM PROCESS IC304
FL701
4MHz L.P.F.
P701
IRIS POSITION
ZOOM 1
ZOOM 0
LED CONT
FOCUS 1
FOCUS 0
FOCUS MOTOR ⊖
FOCUS MOTOR ⊕
54mm 5V 30mm 25mm 12mm
9m
REFLECTION ALUMINIUM FOIL
IC701
10m 5V 2.4m 1.3m 1.2m
∞

HIGH SPEED SHUTTER MODE				
SHUTTER	NORMAL	1/250	1/500	1/1000
IC201-⑩	L	L	H	H
IC201-⑪	L	H	L	H

IC501

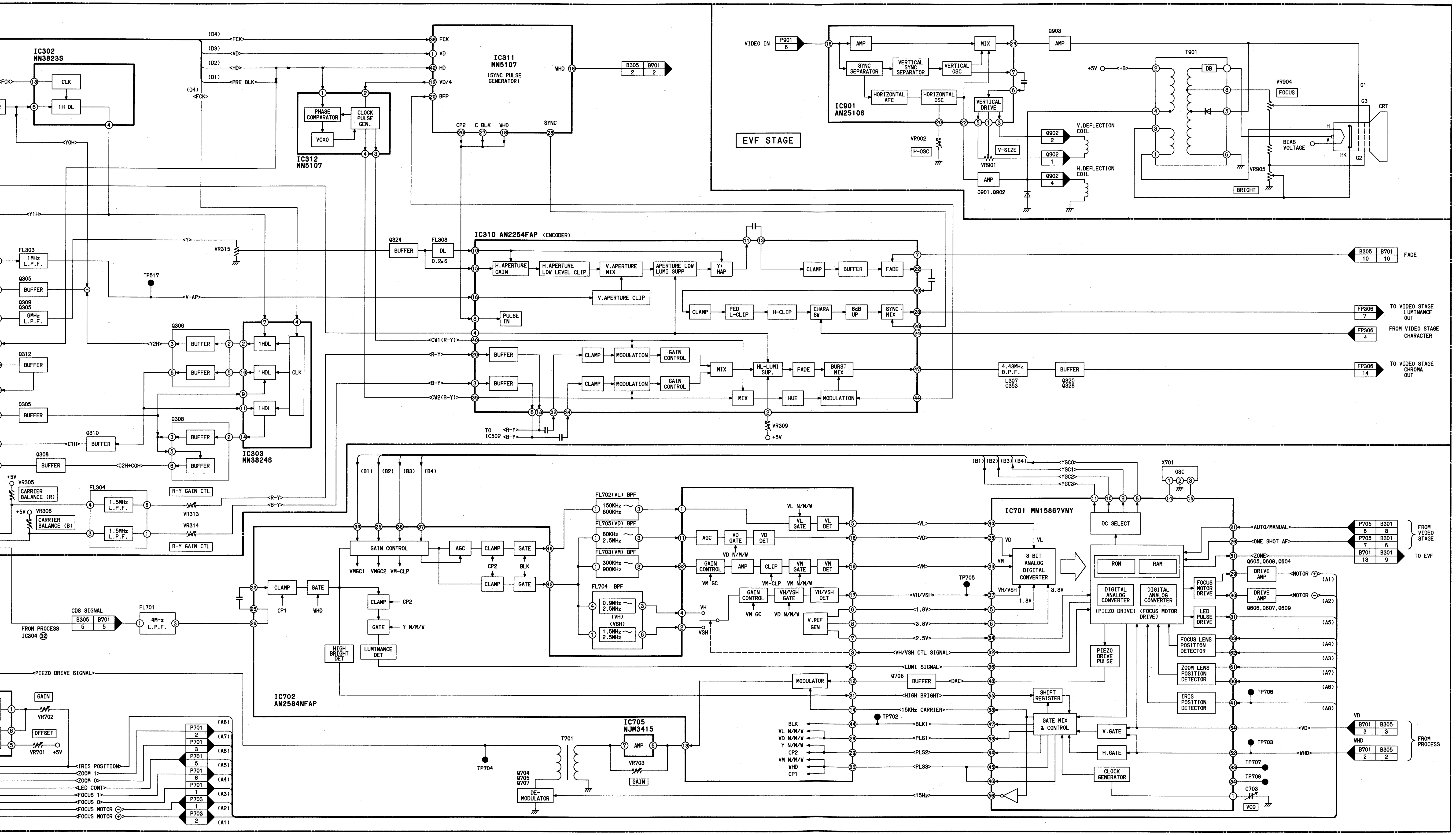
	⑨	⑩	B	R
INDOOR	L	L	B0	R0
OUTDOOR	L	H	B1	R1
AWT MODE	H	L	B2	R2
	H	H	B3	R3

(ZOOM POSITION)

DISTANCE / IC701	9mm ~ 12mm	12mm ~ 25mm	25mm ~ 30mm	30mm ~ 54mm
ZOOM 1 PIN 61	0	1	1	0
ZOOM 2 PIN 60	0	0	1	1

(FOCUS POSITION)

DISTANCE / IC701	1.2m ~ 1.3m	1.3m ~ 2.4m	2.4m ~ 10m	∞
FOCUS 1 PIN 63	0	1	1	0
FOCUS 2 PIN 62	1	1	0	0



IC302
MN3823S
CLK
1H DL
IC311
MN5107
(SYNC PULSE GENERATOR)
FCK
VD
HD
VD/4
BFP
WHD
CP2
C BLK
SYNC
IC312
MN5107
PHASE COMPARATOR
CLOCK PULSE GEN.
VCXO
B305
B701
EVF STAGE
VIDEO IN
P901
AMP
MIX
SYNC SEPARATOR
VERTICAL SYNC SEPARATOR
VERTICAL OSC
HORIZONTAL AFC
HORIZONTAL OSC
VERTICAL DRIVE
IC901
AN2510S
VR902
H-OSC
VR901
V-SIZE
Q903
Q902
Q901,Q902
V.DEFLECTION COIL
H.DEFLECTION COIL
+5V
T901
DB
VR904
FOCUS
VR905
BRIGHT
BIAS VOLTAGE
CRT
G1
G2
G3
HK
IC310 AN2254FAP (ENCODER)
Q324
BUFFER
FL308
DL
0.2μS
H.APERTURE GAIN
H.APERTURE LOW LEVEL CLIP
V.APERTURE MIX
APERTURE LOW LUMI SUPP
Y+ HAP
CLAMP
FADE
V.APERTURE CLIP
PULSE IN
PED L-CLIP
H-CLIP
CHARA SW
6dB UP
SYNC MIX
MODULATION
GAIN CONTROL
HL-LUMI SUP.
BURST MIX
HUE
VR309
VR315
TP517
FL303
1MHz L.P.F.
Q305
Q309
6MHz L.P.F.
Q306
Q312
Q308
Q310
1HDL
IC303
MN3824S
<Y1H>
<Y>
<V-AP>
<Y2H>
<C1H>
<C2H+COH>
<CW1(R-Y)>
<R-Y>
<B-Y>
<CW2(B-Y)>
TO IC502
FADE
TO VIDEO STAGE LUMINANCE OUT
FROM VIDEO STAGE CHARACTER
TO VIDEO STAGE CHROMA OUT
4.43MHz B.P.F.
L307
C353
Q320
Q328
FP306
VR305
CARRIER BALANCE (R)
VR306
CARRIER BALANCE (B)
FL304
1.5MHz L.P.F.
VR313
VR314
R-Y GAIN CTL
B-Y GAIN CTL
CDS SIGNAL
FROM PROCESS IC304 ㉜
FL701
4MHz L.P.F.
IC702
AN2584NFAP
GAIN CONTROL
AGC
GATE
VMGC1 VMGC2 VM-CLP
CP1
CP2
BLK
Y N/M/W
HIGH BRIGHT DET
LUMINANCE DET
FL702(VL) BPF
150KHz ~ 600KHz
FL705(VD) BPF
80KHz ~ 2.5MHz
FL703(VM) BPF
300KHz ~ 900KHz
FL704 BPF
0.9MHz ~ 2.5MHz
(VH)
(VSH)
1.5MHz ~ 2.5MHz
VL N/M/W
VL GATE
VL DET
VD GATE
VD DET
VD N/M/W
VM GC
CLIP
VM GATE
VM DET
VH/VSH GATE
VH/VSH DET
V.REF GEN
MODULATOR
IC705
NJM3415
VR703
T701
TP704
Q704 Q705 Q707
DE-MODULATOR
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GAIN
VR702
OFFSET
VR701
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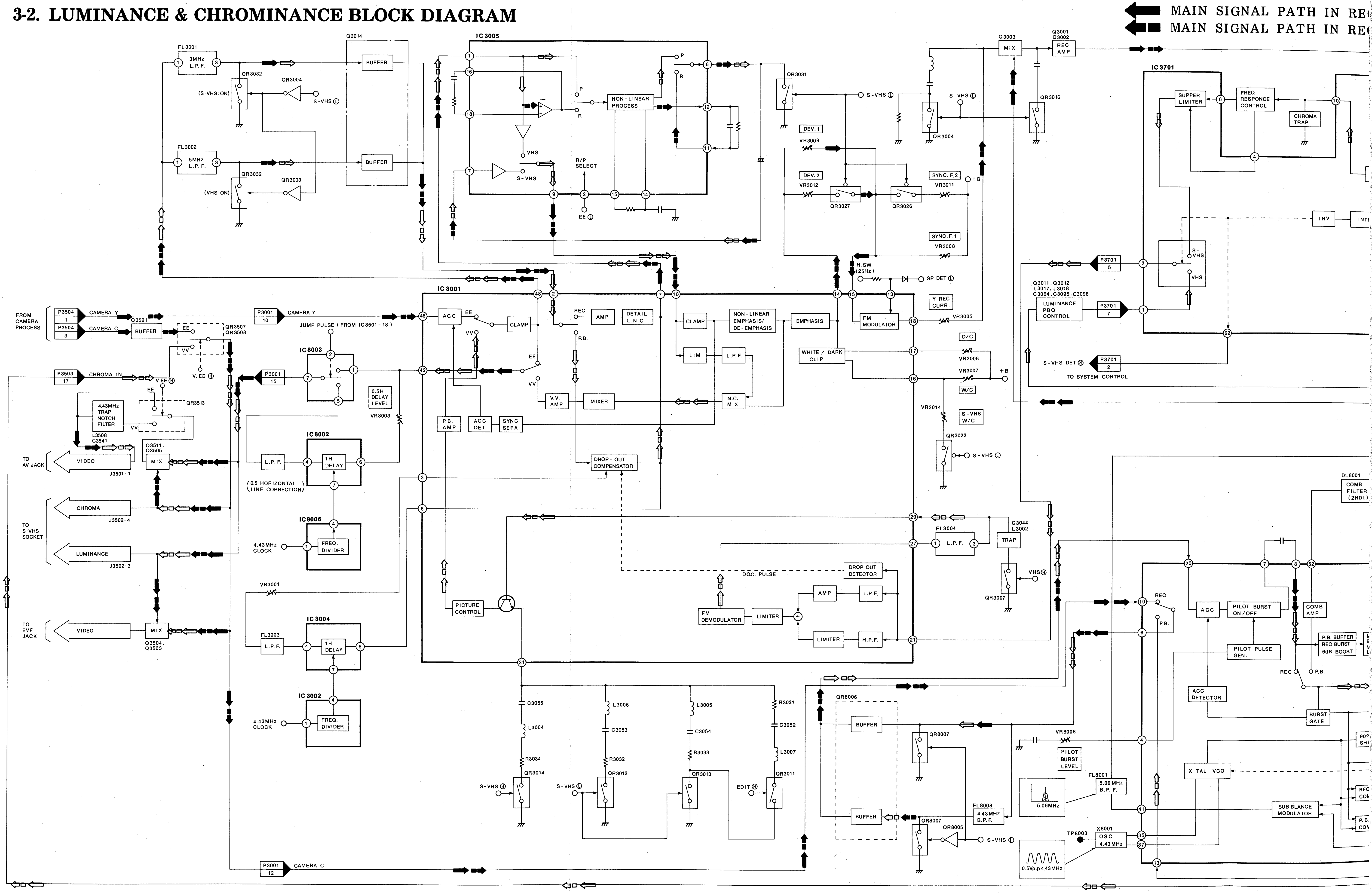
<ZOOM 0>
<LED CONT>
<FOCUS 1>
<FOCUS 0>
<FOCUS MOTOR ⊖>
<FOCUS MOTOR ⊕>
P701
P703
(A1) (A2) (A3) (A4) (A5) (A6) (A7) (A8)
IC701 MN15867VNY
DC SELECT
X701
OSC
8 BIT ANALOG DIGITAL CONVERTER
ROM
RAM
DIGITAL ANALOG CONVERTER (PIEZO DRIVE)
DIGITAL ANALOG CONVERTER (FOCUS MOTOR DRIVE)
FOCUS MOTOR DRIVE
LED PULSE DRIVE
PIEZO DRIVE PULSE
FOCUS LENS POSITION DETECTOR
ZOOM LENS POSITION DETECTOR
IRIS POSITION DETECTOR
SHIFT REGISTER
GATE MIX & CONTROL
V.GATE
H.GATE
CLOCK GENERATOR
DRIVE AMP
Q605,Q608,Q604
Q606,Q607,Q609
<AUTO/MANUAL>
<ONE SHOT AF>
<ZONE>
<MOTOR ⊕>
<MOTOR ⊖>
<YGC0> <YGC1> <YGC2> <YGC3>
(B1) (B2) (B3) (B4)
<VL> <VD> <VM> <VH/VSH>
<1.8V> <3.8V> <2.5V>
<VH/VSH CTL SIGNAL>
<LUMI SIGNAL>
Q706
<DAC>
<HIGH BRIGHT>
<15KHz CARRIER>
<BLK1> <PLS1> <PLS2> <PLS3>
<15Hz>
BLK
VL N/M/W
VD N/M/W
Y N/M/W
CP2
VM N/M/W
WHD
CP1
TP702
TP703
TP705
TP706
TP707
TP708
C703
VCO
P705
B301
FROM VIDEO STAGE
TO EVF
FROM PROCESS

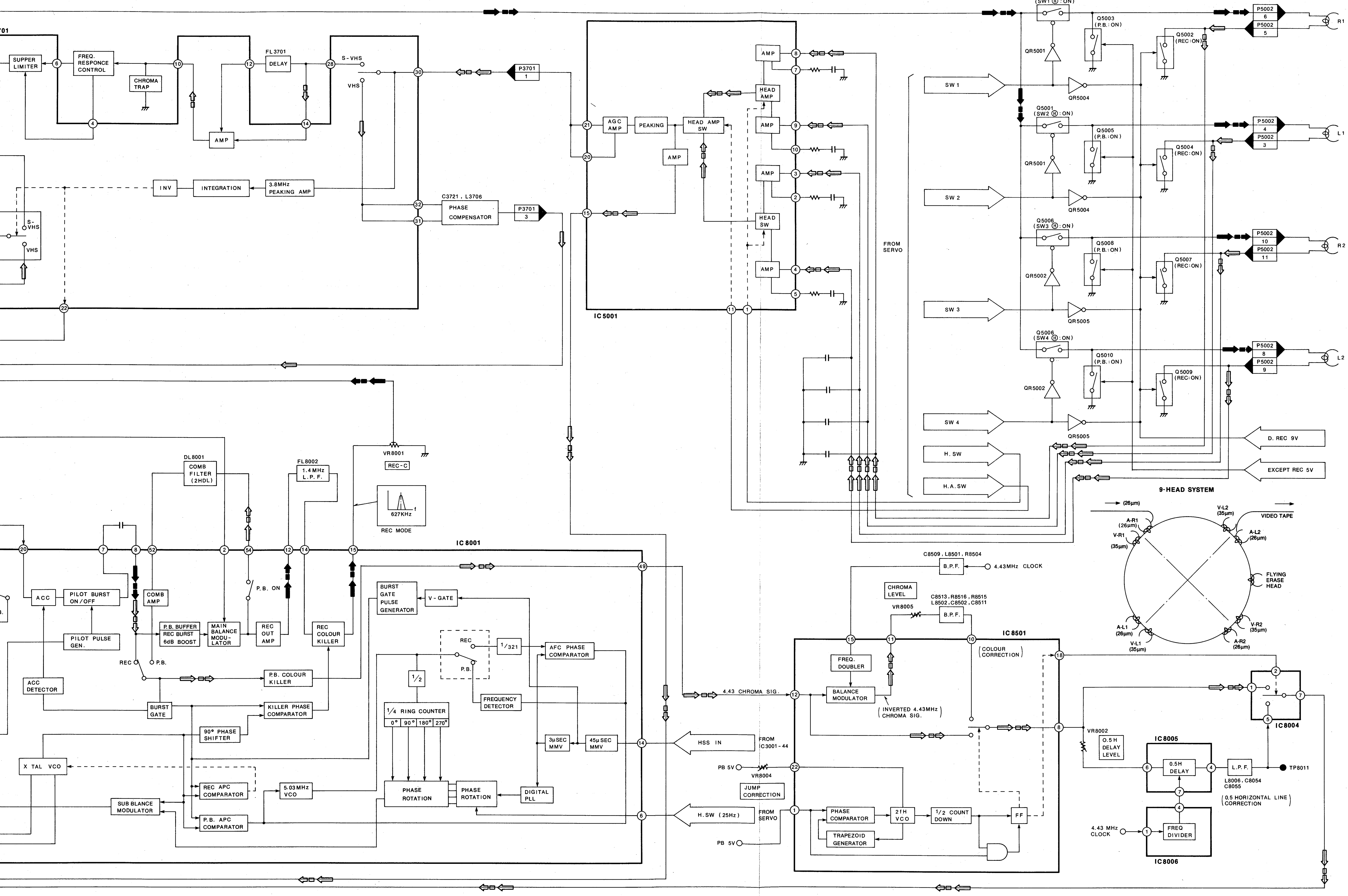
3-2. LUMINANCE & CHROMINANCE BLOCK DIAGRAM


MAIN SIGNAL PATH IN RE
MAIN SIGNAL PATH IN RE
FL3001
3MHz L.P.F.
QR3032
QR3004
(S-VHS:ON)
S-VHS Ⓛ
Q3014
BUFFER
FL3002
5MHz L.P.F.
QR3003
(VHS:ON)
IC3005
P
R
VHS
S-VHS
NON-LINEAR PROCESS
R/P SELECT
EE Ⓛ
Q3003
MIX
Q3001
Q3002
REC AMP
QR3031
QR3016
DEV.1
VR3009
DEV.2
VR3012
QR3027
QR3026
SYNC. F.2
VR3011
SYNC. F.1
VR3008
+B
H.SW (25Hz)
SP DET Ⓛ
Y REC CURR.
VR3005
IC3701
SUPPER LIMITER
FREQ. RESPONCE CONTROL
CHROMA TRAP
INV
INTE
S-VHS
Q3011, Q3012
L3017, L3018
C3094, C3095, C3096
LUMINANCE PBQ CONTROL
P3701 5
P3701 7
P3701 2
S-VHS DET Ⓗ
TO SYSTEM CONTROL
FROM CAMERA PROCESS
P3504 1
P3504 3
CAMERA Y
CAMERA C
Q3521
BUFFER
EE
VV
QR3507
QR3508
P3001 10
JUMP PULSE (FROM IC8501-18)
IC3001
AGC
CLAMP
REC
AMP
DETAIL L.N.C.
P.B.
P3503 17
CHROMA IN
V.EE Ⓗ
4.43MHz TRAP NOTCH FILTER
L3508
C3541
QR3513
IC8003
P3001 15
0.5H DELAY LEVEL
VR8003
V.V. AMP
MIXER
N.C. MIX
LIM
L.P.F.
NON-LINEAR EMPHASIS/ DE-EMPHASIS
EMPHASIS
WHITE / DARK CLIP
FM MODULATOR
D/C
VR3006
VR3007
W/C
VR3014
S-VHS W/C
QR3022
P.B. AMP
AGC DET
SYNC SEPA
DROP-OUT COMPENSATOR
TO AV JACK
VIDEO
Q3511, Q3505
MIX
J3501-1
L.P.F.
IC8002
1H DELAY
(0.5 HORIZONTAL LINE CORRECTION)
TO S-VHS SOCKET
CHROMA
J3502-4
LUMINANCE
J3502-3
IC8006
4.43MHz CLOCK
FREQ. DIVIDER
FL3004
C3044
L3002
TRAP
QR3007
VHS Ⓗ
DROP OUT DETECTOR
D.O.C. PULSE
FM DEMODULATOR
LIMITER
H.P.F.
PICTURE CONTROL
TO EVF JACK
Q3504, Q3503
VR3001
FL3003
IC3004
IC3002
C3055
L3004
R3034
QR3014
S-VHS Ⓗ
L3006
C3053
R3032
QR3012
S-VHS Ⓛ
L3005
C3054
R3033
QR3013
R3031
C3052
L3007
QR3011
EDIT Ⓗ
P3001 12
QR8006
QR8007
QR8005
VR8008
PILOT BURST LEVEL
5.06MHz
FL8001
5.06MHz B.P.F.
FL8008
4.43MHz B.P.F.
S-VHS Ⓗ
TP8003
X8001
OSC 4.43MHz
0.5Vp-p 4.43MHz
DL8001
COMB FILTER (2HDL)
ACC
PILOT BURST ON/OFF
COMB AMP
PILOT PULSE GEN.
P.B. BUFFER
REC BURST 6dB BOOST
ACC DETECTOR
BURST GATE
90° SHI
X TAL VCO
SUB BLANCE MODULATOR
REC CO
P.B. CO

Back Page:
CAMERA STAGE Section

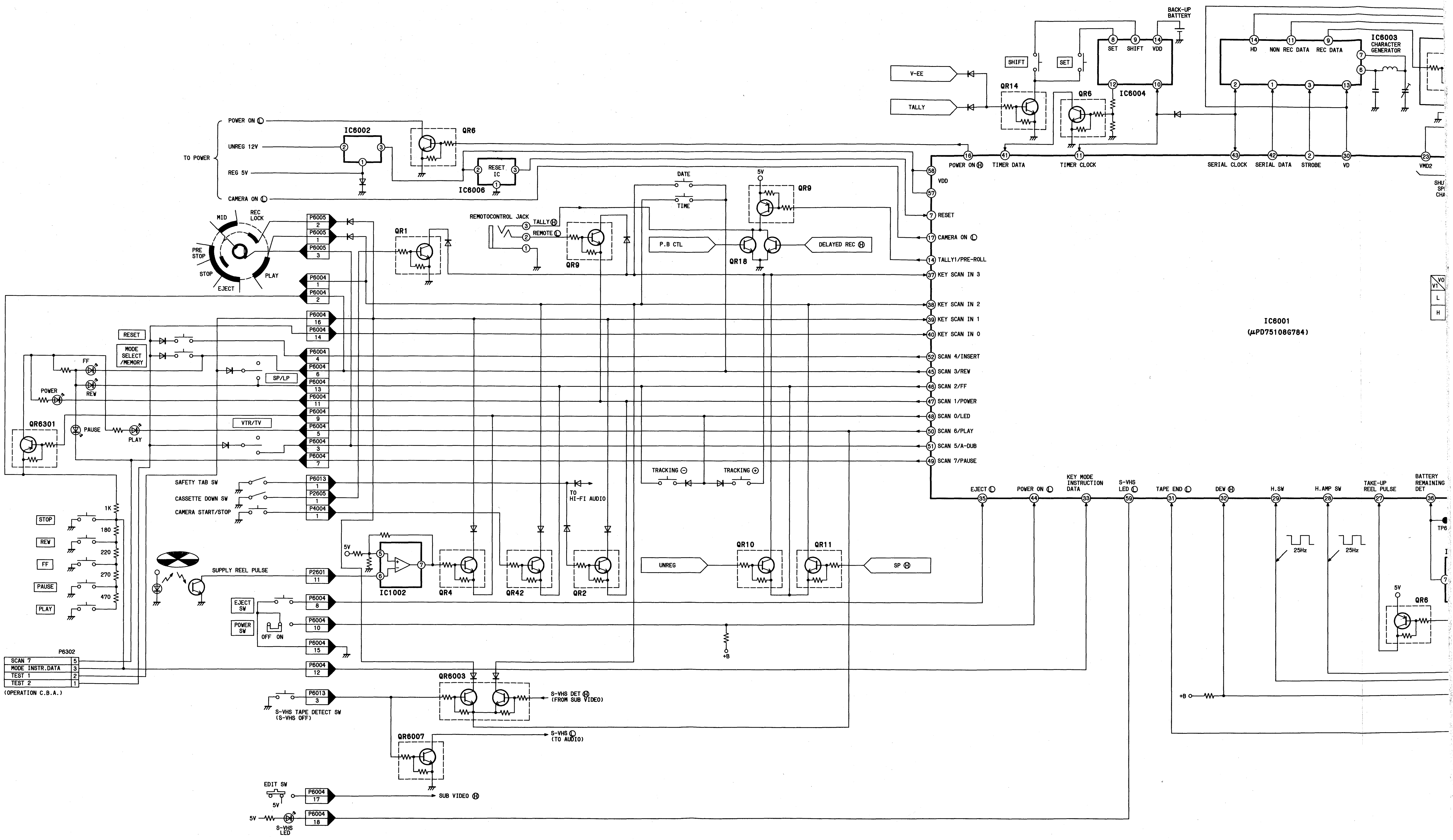
MAIN SIGNAL PATH IN REC MODE (VHS)
MAIN SIGNAL PATH IN REC MODE (S-VHS)

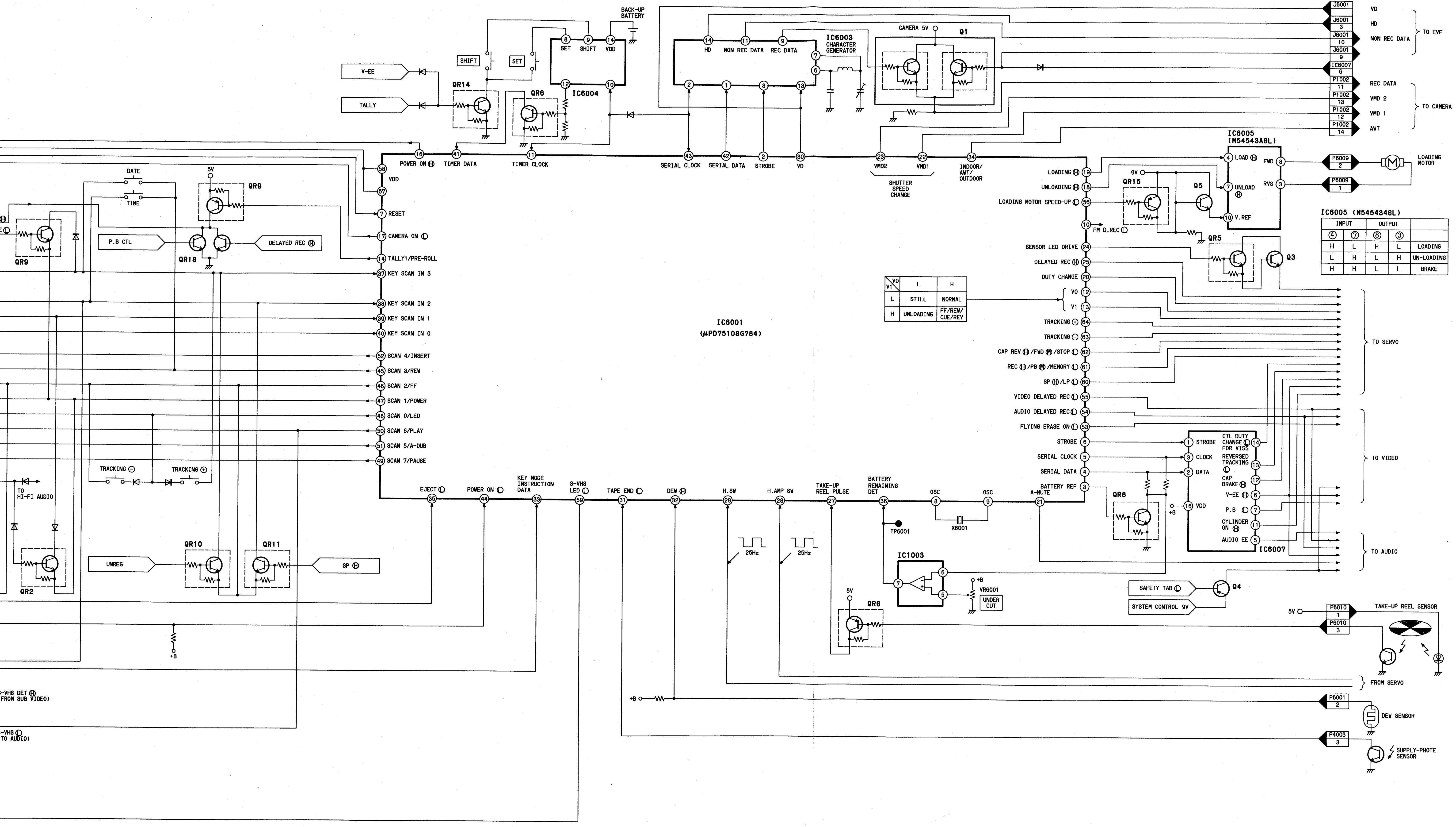
MAIN SIGNAL PATH IN PLAYBACK MODE (VHS)
MAIN SIGNAL PATH IN PLAYBACK MODE (S-VHS)



SUPPER LIMITER
FREQ. RESPONCE CONTROL
CHROMA TRAP
FL3701
DELAY
S-VHS
VHS
AMP
P3701
INV
INTEGRATION
3.8MHz PEAKING AMP
C3721, L3706
PHASE COMPENSATOR
S-VHS
VHS
AGC AMP
PEAKING
HEAD AMP SW
HEAD AMP
HEAD SW
AMP
IC5001
FROM SERVO
SW 1
SW 2
SW 3
SW 4
H. SW
H.A.SW
Q5001 (SW1 Ⓗ:ON)
Q5001 (SW2 Ⓗ:ON)
Q5006 (SW3 Ⓗ:ON)
Q5006 (SW4 Ⓗ:ON)
Q5003 (P.B.:ON)
Q5005 (P.B.:ON)
Q5008 (P.B.:ON)
Q5010 (P.B.:ON)
Q5002 (REC:ON)
Q5004 (REC:ON)
Q5007 (REC:ON)
Q5009 (REC:ON)
QR5001
QR5002
QR5004
QR5005
P5002
R1
L1
R2
L2
D. REC 9V
EXCEPT REC 5V
9-HEAD SYSTEM
(26μm)
VIDEO TAPE
A-R1 (26μm)
V-R1 (35μm)
V-L2 (35μm)
A-L2 (26μm)
FLYING ERASE HEAD
A-L1 (26μm)
V-L1 (35μm)
V-R2 (35μm)
A-R2 (26μm)
VR8001
REC-C
DL8001
COMB FILTER (2HDL)
FL8002
1.4MHz L.P.F.
627KHz
REC MODE
IC8001
ACC
PILOT BURST ON/OFF
PILOT PULSE GEN.
COMB AMP
P.B. BUFFER REC BURST 6dB BOOST
MAIN BALANCE MODULATOR
P.B. ON
REC OUT AMP
REC COLOUR KILLER
BURST GATE PULSE GENERATOR
V-GATE
REC
P.B.
1/321
AFC PHASE COMPARATOR
½
FREQUENCY DETECTOR
¼ RING COUNTER
0° 90° 180° 270°
ACC DETECTOR
P.B. COLOUR KILLER
BURST GATE
KILLER PHASE COMPARATOR
90° PHASE SHIFTER
X TAL VCO
REC APC COMPARATOR
P.B. APC COMPARATOR
5.03MHz VCO
SUB BLANCE MODULATOR
PHASE ROTATION
DIGITAL PLL
3μSEC MMV
45μSEC MMV
HSS IN
FROM IC3001-44
H.SW (25Hz)
FROM SERVO
4.43 CHROMA SIG.
C8509, L8501, R8504
B.P.F.
4.43MHz CLOCK
CHROMA LEVEL
VR8005
C8513, R8516, R8515 L8502, C8502, C8511
IC8501
(COLOUR CORRECTION)
FREQ. DOUBLER
BALANCE MODULATOR
(INVERTED 4.43MHz CHROMA SIG.)
PB 5V
VR8004
JUMP CORRECTION
PHASE COMPARATOR
TRAPEZOID GENERATOR
2fH VCO
½ COUNT DOWN
FF
VR8002
0.5H DELAY LEVEL
IC8005
0.5H DELAY
L.P.F.
TP8011
L8006, C8054 C8055
(0.5 HORIZONTAL LINE CORRECTION)
IC8004
4.43 MHz CLOCK
FREQ DIVIDER
IC8006

3-3. SYSTEM CONTROL BLOCK DIAGRAM


BACK-UP BATTERY
SHIFT
SET
SET SHIFT VDD
IC6004
IC6003 CHARACTER GENERATOR
HD NON REC DATA REC DATA
V-EE
TALLY
QR14
QR6
POWER ON Ⓗ
TIMER DATA
TIMER CLOCK
SERIAL CLOCK
SERIAL DATA
STROBE
VD
VMD2
TO POWER
POWER ON Ⓛ
UNREG 12V
REG 5V
CAMERA ON Ⓛ
IC6002
RESET IC
IC6006
VDD
RESET
CAMERA ON Ⓛ
TALLY1/PRE-ROLL
KEY SCAN IN 3
KEY SCAN IN 2
KEY SCAN IN 1
KEY SCAN IN 0
SCAN 4/INSERT
SCAN 3/REW
SCAN 2/FF
SCAN 1/POWER
SCAN 0/LED
SCAN 6/PLAY
SCAN 5/A-DUB
SCAN 7/PAUSE
IC6001
(μPD75108G784)
MID
REC LOCK
PRE STOP
STOP
EJECT
PLAY
REMOTOCONTROL JACK
TALLY Ⓗ
REMOTE Ⓛ
DATE
TIME
5V
QR9
QR1
P.B CTL
QR18
DELAYED REC Ⓗ
P6005
P6004
RESET
MODE SELECT /MEMORY
SP/LP
VTR/TV
FF
REW
POWER
PAUSE
QR6301
TRACKING ⊖
TRACKING ⊕
SAFETY TAB SW
CASSETTE DOWN SW
CAMERA START/STOP
P6013
P2605
P4004
TO HI-FI AUDIO
1K
180
220
270
470
STOP
REW
FF
PAUSE
PLAY
SUPPLY REEL PULSE
P2601
IC1002
QR4
QR42
QR2
UNREG
QR10
QR11
SP Ⓗ
EJECT SW
POWER SW
OFF ON
+B
P6302
SCAN 7
MODE INSTR.DATA
TEST 1
TEST 2
(OPERATION C.B.A.)
QR6003
S-VHS DET Ⓗ (FROM SUB VIDEO)
S-VHS TAPE DETECT SW (S-VHS OFF)
QR6007
S-VHS Ⓛ (TO AUDIO)
EDIT SW
SUB VIDEO Ⓗ
S-VHS LED
EJECT Ⓛ
POWER ON Ⓛ
KEY MODE INSTRUCTION DATA
S-VHS LED Ⓛ
TAPE END Ⓛ
DEW Ⓗ
H.SW
H.AMP SW
TAKE-UP REEL PULSE
BATTERY REMAINING DET
25Hz
25Hz
TP6
QR6
V0
V1
L
H


BACK-UP BATTERY
SHIFT
SET
V-EE
TALLY
QR14
QR6
IC6004
SET SHIFT VDD
IC6003 CHARACTER GENERATOR
HD NON REC DATA REC DATA
CAMERA 5V
Q1
J6001 1 VD
J6001 3 HD
J6001 10 NON REC DATA
J6001 9
IC6007 6
TO EVF
P1002 11 REC DATA
P1002 13 VMD 2
P1002 12 VMD 1
P1002 14 AWT
TO CAMERA
IC6005 (M54543ASL)
LOAD Ⓗ
UNLOAD Ⓗ
V.REF
FWD
RVS
P6009 2
P6009 1
LOADING MOTOR
POWER ON Ⓗ
TIMER DATA
TIMER CLOCK
SERIAL CLOCK
SERIAL DATA
STROBE
VD
VMD2
VMD1
SHUTTER SPEED CHANGE
INDOOR/ AWT/ OUTDOOR
DATE
TIME
5V
QR9
VDD
RESET
CAMERA ON Ⓛ
P.B CTL
QR18
DELAYED REC Ⓗ
TALLY1/PRE-ROLL
KEY SCAN IN 3
KEY SCAN IN 2
KEY SCAN IN 1
KEY SCAN IN 0
SCAN 4/INSERT
SCAN 3/REW
SCAN 2/FF
SCAN 1/POWER
SCAN 0/LED
SCAN 6/PLAY
SCAN 5/A-DUB
SCAN 7/PAUSE
IC6001 (μPD75108G784)
LOADING Ⓗ
UNLOADING Ⓗ
LOADING MOTOR SPEED-UP Ⓛ
FM D.REC Ⓛ
9V
QR15
Q5
QR5
Q3
SENSOR LED DRIVE
DELAYED REC Ⓗ
DUTY CHANGE
V0
V1
TRACKING ⊕
TRACKING ⊖
CAP REV Ⓗ/FWD Ⓜ/STOP Ⓛ
REC Ⓗ/PB Ⓜ/MEMORY Ⓛ
SP Ⓗ/LP Ⓛ
VIDEO DELAYED REC Ⓛ
AUDIO DELAYED REC Ⓛ
FLYING ERASE ON Ⓛ
STROBE
SERIAL CLOCK
SERIAL DATA
BATTERY REF
TO SERVO
TO VIDEO
TO AUDIO
CTL DUTY CHANGE Ⓛ FOR VISS
REVERSED TRACKING Ⓛ
CAP BRAKE Ⓗ
V-EE Ⓗ
P.B Ⓛ
CYLINDER ON Ⓗ
AUDIO EE
IC6007
STROBE
CLOCK
DATA
VDD
+B
QR8
A-MUTE
TRACKING ⊖
TRACKING ⊕
TO HI-FI AUDIO
QR2
UNREG
QR10
QR11
SP Ⓗ
EJECT Ⓛ
POWER ON Ⓛ
KEY MODE INSTRUCTION DATA
S-VHS LED Ⓛ
TAPE END Ⓛ
DEW Ⓗ
H.SW
H.AMP SW
TAKE-UP REEL PULSE
BATTERY REMAINING DET
OSC
OSC
X6001
TP6001
25Hz
25Hz
IC1003
5V
QR6
VR6001
UNDER CUT
SAFETY TAB Ⓛ
SYSTEM CONTROL 9V
Q4
5V
P6010 1
P6010 3
TAKE-UP REEL SENSOR
FROM SERVO
+B
P6001 2
DEW SENSOR
P4003 3
SUPPLY-PHOTE SENSOR
-VHS DET Ⓗ (FROM SUB VIDEO)
-VHS Ⓛ (TO AUDIO)

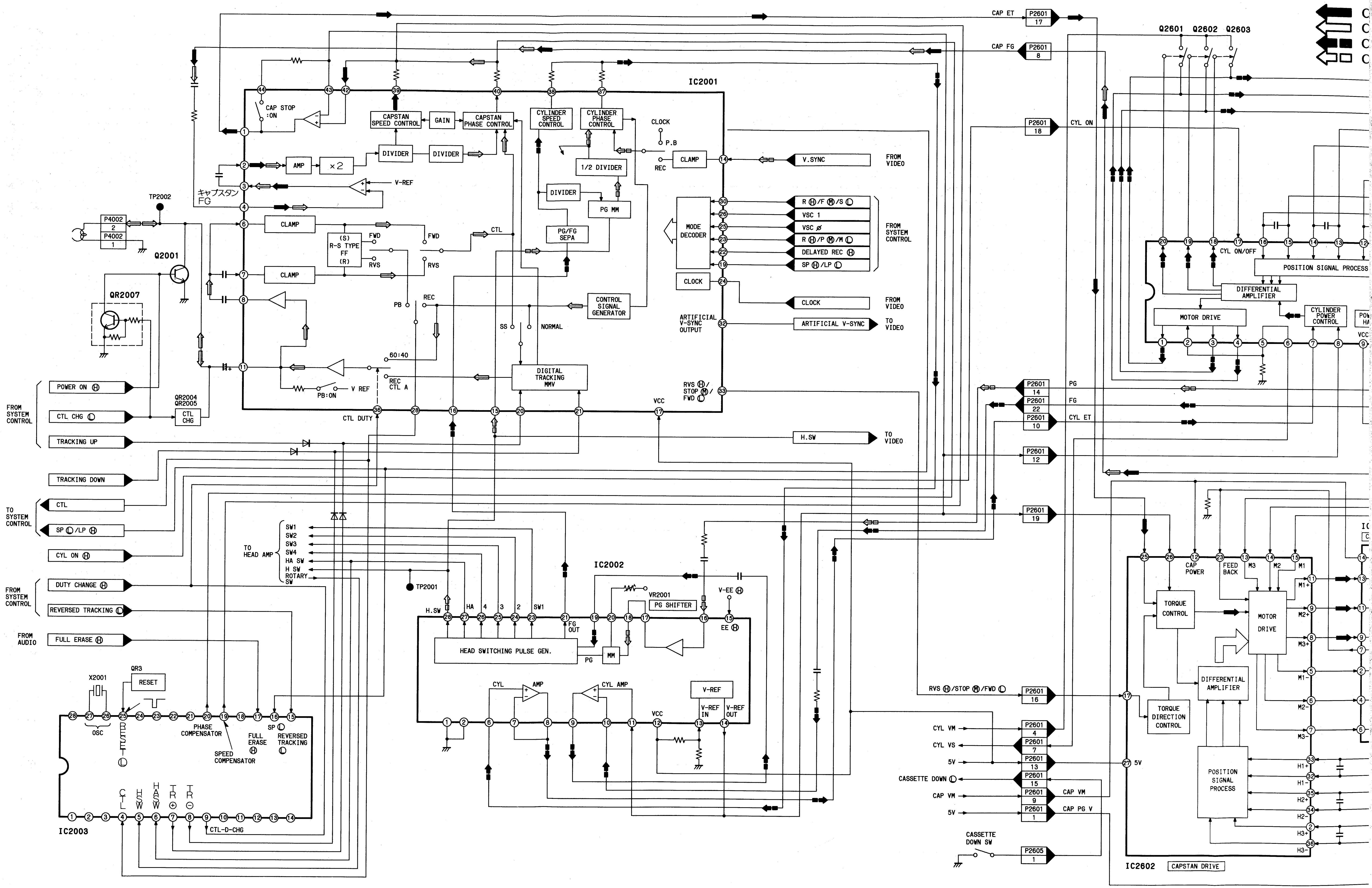
V1 \ V0	L	H
L	STILL	NORMAL
H	UNLOADING	FF/REW/ CUE/REV

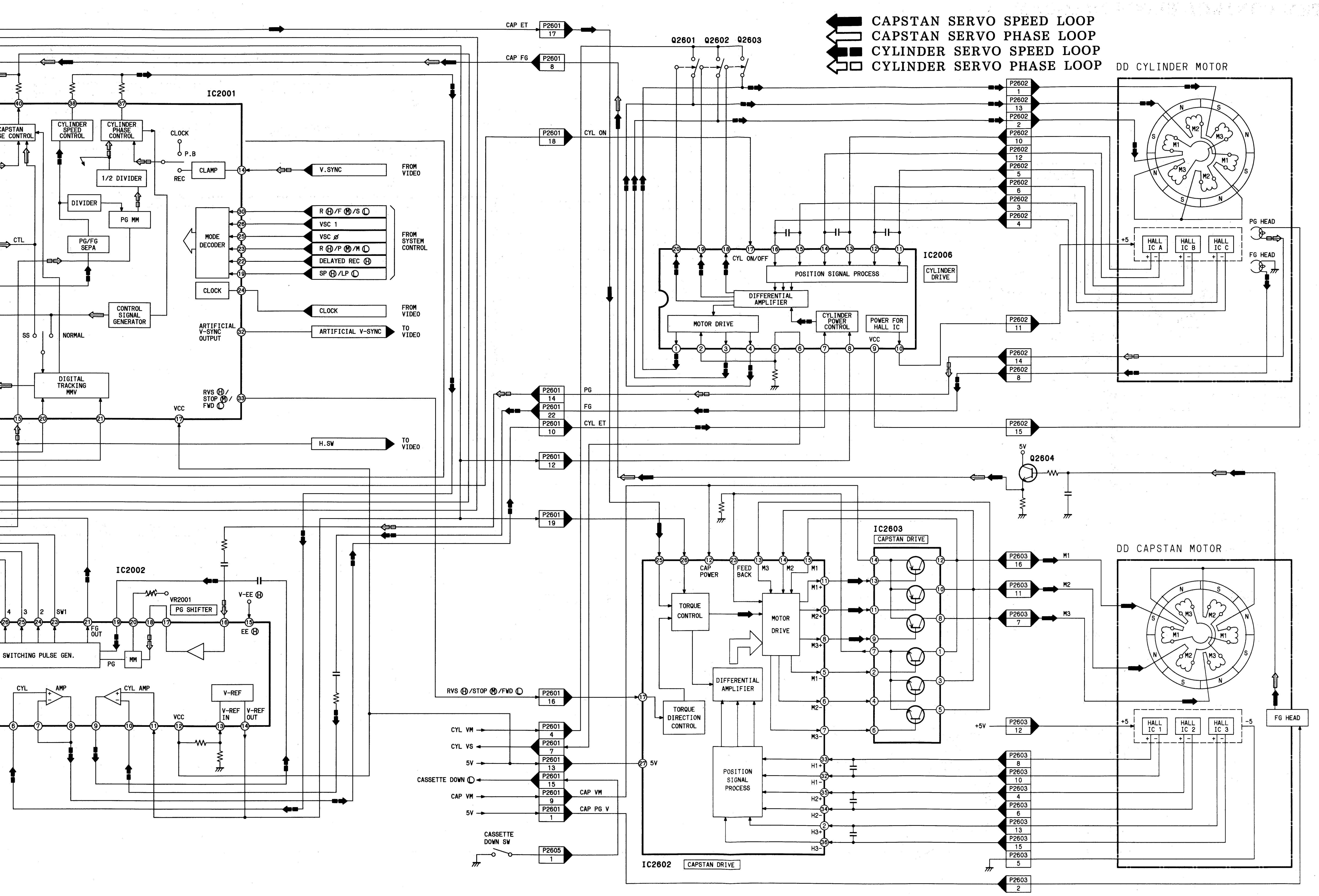
IC6005 (M545434SL)

INPUT		OUTPUT		
④	⑦	⑧	③	
H	L	H	L	LOADING
L	H	L	H	UN-LOADING
H	H	L	L	BRAKE

Next Page:
SERVO Section

3-4. SERVO BLOCK DIAGRAM

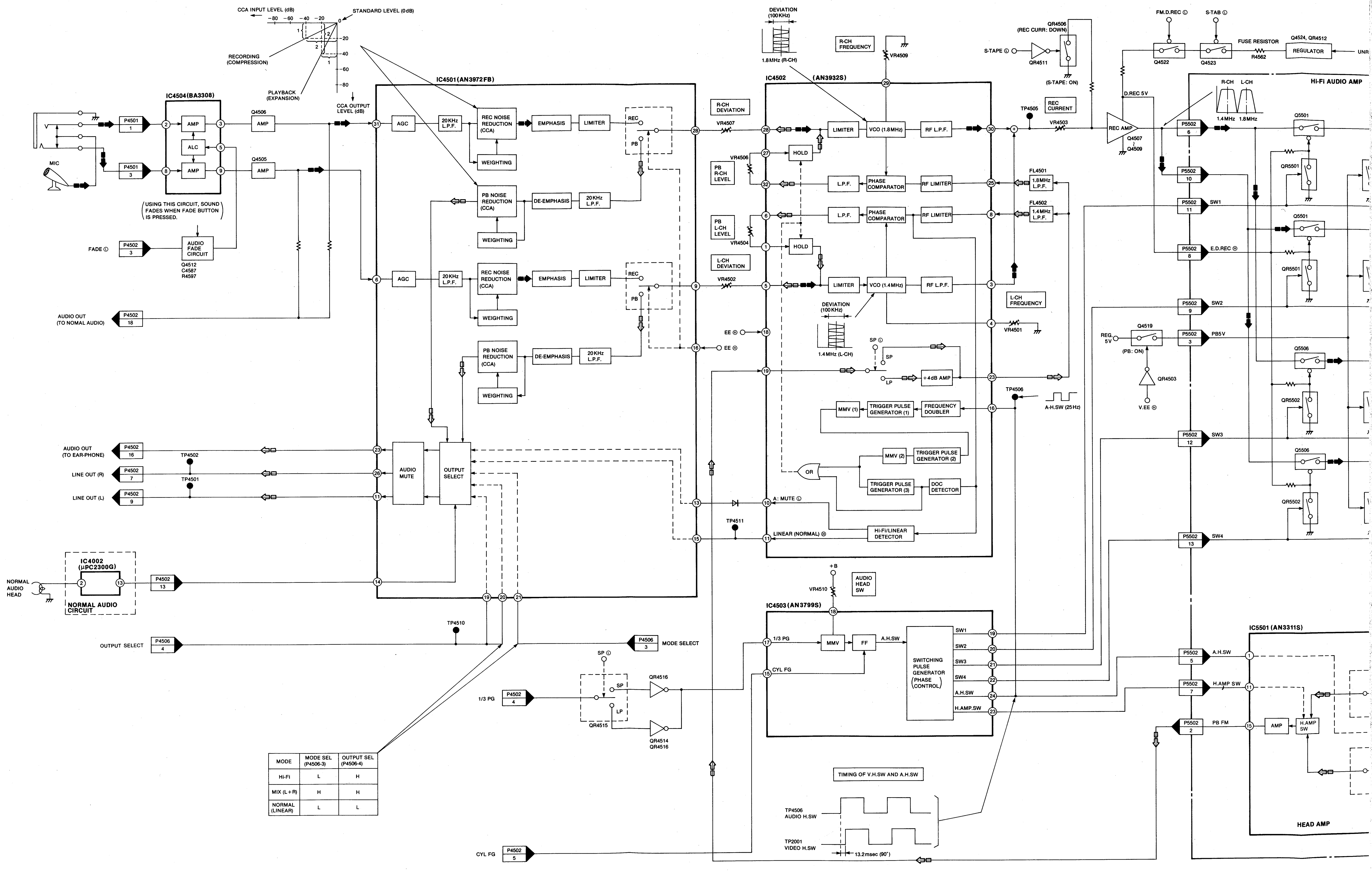

IC2001
CAP STOP :ON
CAPSTAN SPEED CONTROL
GAIN
CAPSTAN PHASE CONTROL
CYLINDER SPEED CONTROL
CYLINDER PHASE CONTROL
CLOCK
P.B
REC
CLAMP
V.SYNC
FROM VIDEO
AMP
×2
DIVIDER
DIVIDER
1/2 DIVIDER
DIVIDER
PG MM
V-REF
キャプスタン FG
TP2002
P4002 2
P4002 1
Q2001
QR2007
CLAMP
CLAMP
(S) R-S TYPE FF (R)
FWD
RVS
FWD
RVS
CTL
PG/FG SEPA
MODE DECODER
R Ⓗ/F Ⓜ/S Ⓛ
VSC 1
VSC ⌀
R Ⓗ/P Ⓜ/M Ⓛ
DELAYED REC Ⓗ
SP Ⓗ/LP Ⓛ
FROM SYSTEM CONTROL
CLOCK
CLOCK
FROM VIDEO
CONTROL SIGNAL GENERATOR
PB
REC
SS
NORMAL
ARTIFICIAL V-SYNC OUTPUT
ARTIFICIAL V-SYNC
TO VIDEO
60:40
REC CTL A
V REF
PB:ON
DIGITAL TRACKING MMV
RVS Ⓗ/ STOP Ⓜ/ FWD Ⓛ
VCC
CTL DUTY
H.SW
TO VIDEO
POWER ON Ⓗ
CTL CHG Ⓛ
TRACKING UP
FROM SYSTEM CONTROL
QR2004 QR2005
CTL CHG
TRACKING DOWN
CTL
SP Ⓛ/LP Ⓗ
TO SYSTEM CONTROL
CYL ON Ⓗ
DUTY CHANGE Ⓗ
REVERSED TRACKING Ⓛ
FROM SYSTEM CONTROL
FULL ERASE Ⓗ
FROM AUDIO
SW1
SW2
SW3
SW4
HA SW
H SW
ROTARY SW
TO HEAD AMP
TP2001
IC2002
H.SW
HA
4
3
2
SW1
FG OUT
VR2001
PG SHIFTER
V-EE Ⓗ
EE Ⓗ
HEAD SWITCHING PULSE GEN.
PG
MM
CYL
AMP
CYL AMP
V-REF
V-REF IN
V-REF OUT
VCC
X2001
QR3
RESET
OSC
PHASE COMPENSATOR
SPEED COMPENSATOR
FULL ERASE Ⓗ
SP Ⓛ
REVERSED TRACKING Ⓛ
CTL
H SW
HA SW
TR ⊕
TR ⊖
CTL-D-CHG
IC2003
CAP ET
P2601 17
CAP FG
P2601 8
Q2601
Q2602
Q2603
P2601 18
CYL ON
CYL ON/OFF
POSITION SIGNAL PROCESS
DIFFERENTIAL AMPLIFIER
MOTOR DRIVE
CYLINDER POWER CONTROL
VCC
P2601 14
PG
P2601 22
FG
P2601 10
CYL ET
P2601 12
P2601 19
CAP POWER
FEED BACK
M3
M2
M1
TORQUE CONTROL
MOTOR DRIVE
DIFFERENTIAL AMPLIFIER
TORQUE DIRECTION CONTROL
POSITION SIGNAL PROCESS
M1+
M2+
M3+
M1-
M2-
M3-
H1+
H1-
H2+
H2-
H3+
H3-
5V
RVS Ⓗ/STOP Ⓜ/FWD Ⓛ
P2601 16
CYL VM
P2601 4
CYL VS
P2601 7
5V
P2601 13
CASSETTE DOWN Ⓛ
P2601 15
CAP VM
P2601 9
CAP VM
5V
P2601 1
CAP PG V
CASSETTE DOWN SW
P2605 1
IC2602
CAPSTAN DRIVE


CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP
IC2001
CAPSTAN PHASE CONTROL
CYLINDER SPEED CONTROL
CYLINDER PHASE CONTROL
CLOCK
P.B
REC
CLAMP
1/2 DIVIDER
DIVIDER
PG MM
PG/FG SEPA
CTL
MODE DECODER
CLOCK
CONTROL SIGNAL GENERATOR
SS
NORMAL
ARTIFICIAL V-SYNC OUTPUT
DIGITAL TRACKING MMV
RVS Ⓗ/ STOP Ⓜ/ FWD Ⓛ
VCC
V.SYNC
FROM VIDEO
R Ⓗ/F Ⓜ/S Ⓛ
VSC 1
VSC ⌀
R Ⓗ/P Ⓜ/M Ⓛ
DELAYED REC Ⓗ
SP Ⓗ/LP Ⓛ
FROM SYSTEM CONTROL
CLOCK
FROM VIDEO
ARTIFICIAL V-SYNC
TO VIDEO
H.SW
TO VIDEO
CAP ET
CAP FG
P2601 17
P2601 8
P2601 18
CYL ON
P2601 14
P2601 22
P2601 10
PG
FG
CYL ET
P2601 12
P2601 19
P2601 16
RVS Ⓗ/STOP Ⓜ/FWD Ⓛ
CYL VM
CYL VS
5V
CASSETTE DOWN Ⓛ
CAP VM
5V
P2601 4
P2601 7
P2601 13
P2601 15
P2601 9
P2601 1
CAP VM
CAP PG V
CASSETTE DOWN SW
P2605 1
IC2002
VR2001
PG SHIFTER
V-EE Ⓗ
EE Ⓗ
SW1
FG OUT
SWITCHING PULSE GEN.
PG
MM
CYL
AMP
CYL AMP
V-REF
V-REF IN
V-REF OUT
VCC
Q2601 Q2602 Q2603
IC2006
CYLINDER DRIVE
CYL ON/OFF
POSITION SIGNAL PROCESS
DIFFERENTIAL AMPLIFIER
MOTOR DRIVE
CYLINDER POWER CONTROL
POWER FOR HALL IC
VCC
DD CYLINDER MOTOR
P2602 1
P2602 13
P2602 2
P2602 10
P2602 12
P2602 5
P2602 6
P2602 3
P2602 4
P2602 11
P2602 14
P2602 8
P2602 15
M1
M2
M3
N
S
+5
HALL IC A
HALL IC B
HALL IC C
PG HEAD
FG HEAD
5V
Q2604
IC2603
CAPSTAN DRIVE
IC2602
CAPSTAN DRIVE
CAP POWER
FEED BACK
M3
M2
M1
TORQUE CONTROL
MOTOR DRIVE
DIFFERENTIAL AMPLIFIER
TORQUE DIRECTION CONTROL
POSITION SIGNAL PROCESS
5V
M1+
M2+
M3+
M1-
M2-
M3-
H1+
H1-
H2+
H2-
H3+
H3-
DD CAPSTAN MOTOR
P2603 16
P2603 11
P2603 7
P2603 12
+5V
P2603 8
P2603 10
P2603 4
P2603 6
P2603 13
P2603 15
P2603 5
P2603 2
HALL IC 1
HALL IC 2
HALL IC 3
-5
FG HEAD

3-5. Hi-Fi AUDIO BLOCK DIAGRAM

◀■ MAIN SIGNAL PATH IN REC MODE

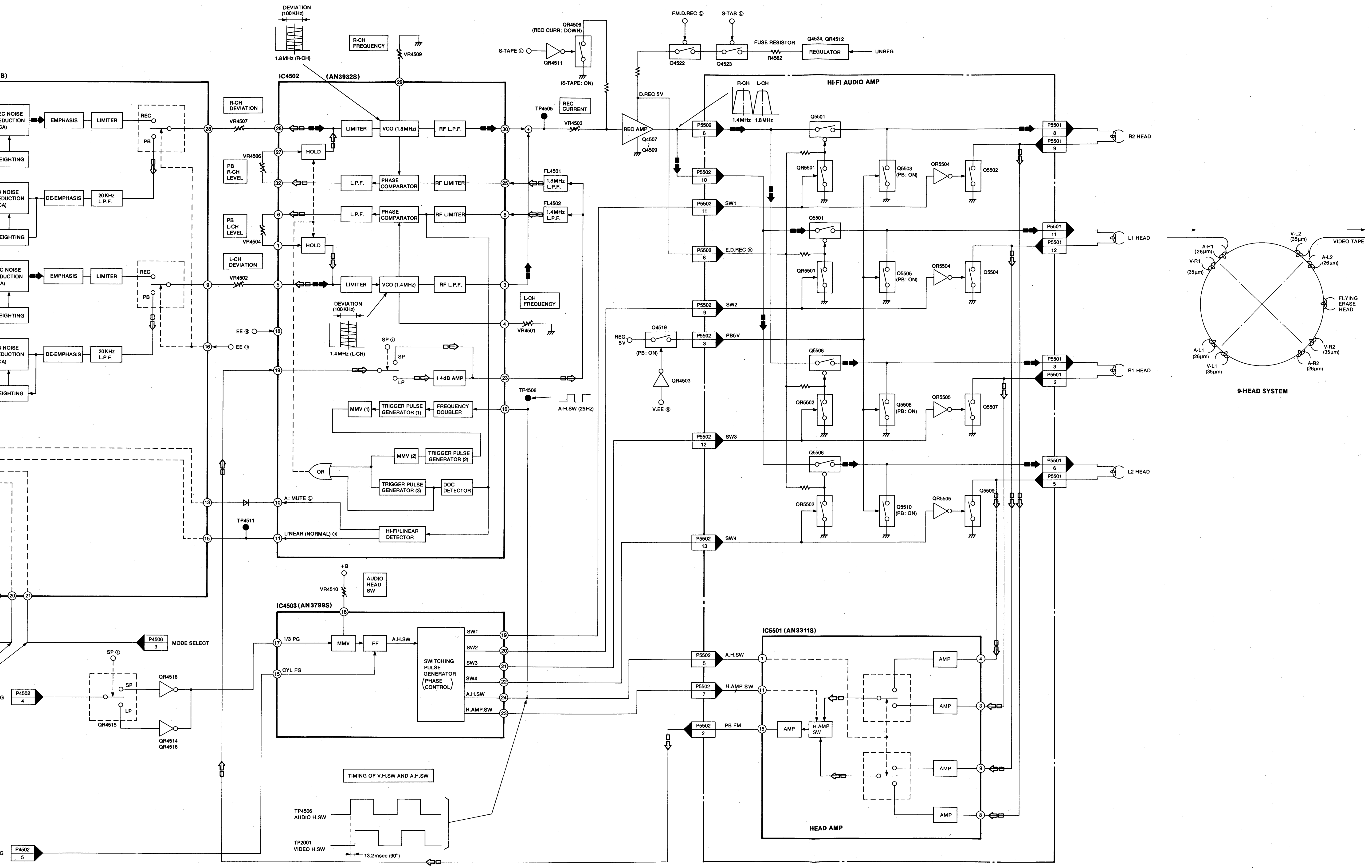
⇦□ MAIN SIGNAL PATH IN PLAYBACK MODE


CCA INPUT LEVEL (dB)
STANDARD LEVEL (0dB)
RECORDING (COMPRESSION)
PLAYBACK (EXPANSION)
CCA OUTPUT LEVEL (dB)
IC4504 (BA3308)
AMP
ALC
Q4506
Q4505
P4501
MIC
(USING THIS CIRCUIT, SOUND FADES WHEN FADE BUTTON IS PRESSED.)
FADE Ⓛ
AUDIO FADE CIRCUIT
Q4512 C4587 R4597
AUDIO OUT (TO NOMAL AUDIO)
IC4501 (AN3972FB)
AGC
20KHz L.P.F.
REC NOISE REDUCTION (CCA)
EMPHASIS
LIMITER
WEIGHTING
PB NOISE REDUCTION (CCA)
DE-EMPHASIS
REC
PB
AUDIO MUTE
OUTPUT SELECT
AUDIO OUT (TO EAR-PHONE)
LINE OUT (R)
LINE OUT (L)
TP4502
TP4501
IC4002 (μPC2300G)
NORMAL AUDIO CIRCUIT
NORMAL AUDIO HEAD
OUTPUT SELECT
TP4510
P4506
MODE SELECT
1/3 PG
SP Ⓛ
QR4515
QR4516
QR4514 QR4516
CYL FG
P4502
DEVIATION (100KHz)
1.8MHz (R-CH)
R-CH FREQUENCY
VR4509
IC4502 (AN3932S)
R-CH DEVIATION
VR4507
VR4506
PB R-CH LEVEL
PB L-CH LEVEL
VR4504
L-CH DEVIATION
VR4502
HOLD
VCO (1.8MHz)
RF L.P.F.
PHASE COMPARATOR
RF LIMITER
VCO (1.4MHz)
1.4MHz (L-CH)
EE Ⓗ
EE Ⓛ
SP
LP
+4dB AMP
MMV (1)
TRIGGER PULSE GENERATOR (1)
FREQUENCY DOUBLER
MMV (2)
TRIGGER PULSE GENERATOR (2)
OR
TRIGGER PULSE GENERATOR (3)
DOC DETECTOR
A: MUTE Ⓛ
LINEAR (NORMAL) Ⓗ
HI-FI/LINEAR DETECTOR
TP4511
+B
VR4510
AUDIO HEAD SW
IC4503 (AN3799S)
1/3 PG
MMV
FF
A.H.SW
SWITCHING PULSE GENERATOR (PHASE CONTROL)
SW1
SW2
SW3
SW4
H.AMP.SW
TIMING OF V.H.SW AND A.H.SW
TP4506 AUDIO H.SW
TP2001 VIDEO H.SW
13.2msec (90°)
QR4506 (REC CURR: DOWN)
S-TAPE Ⓛ
QR4511
(S-TAPE: ON)
REC CURRENT
TP4505
VR4503
FL4501 1.8MHz L.P.F.
FL4502 1.4MHz L.P.F.
L-CH FREQUENCY
VR4501
TP4506
A.H.SW (25Hz)
FM.D.REC Ⓛ
S-TAB Ⓛ
Q4522
Q4523
FUSE RESISTOR
R4562
Q4524, QR4512
REGULATOR
UNR
D.REC 5V
REC AMP
Q4507 Q4509
R-CH L-CH
1.4MHz 1.8MHz
Hi-Fi AUDIO AMP
P5502
Q5501
QR5501
SW1
E.D.REC Ⓗ
SW2
REG. 5V
Q4519
(PB: ON)
QR4503
V.EE Ⓗ
PB5V
Q5506
QR5502
SW3
SW4
IC5501 (AN3311S)
A.H.SW
H.AMP SW
PB FM
AMP
H.AMP SW
HEAD AMP

MODE	MODE SEL (P4506-3)	OUTPUT SEL (P4506-4)
Hi-Fi	L	H
MIX (L+R)	H	H
NORMAL (LINEAR)	L	L

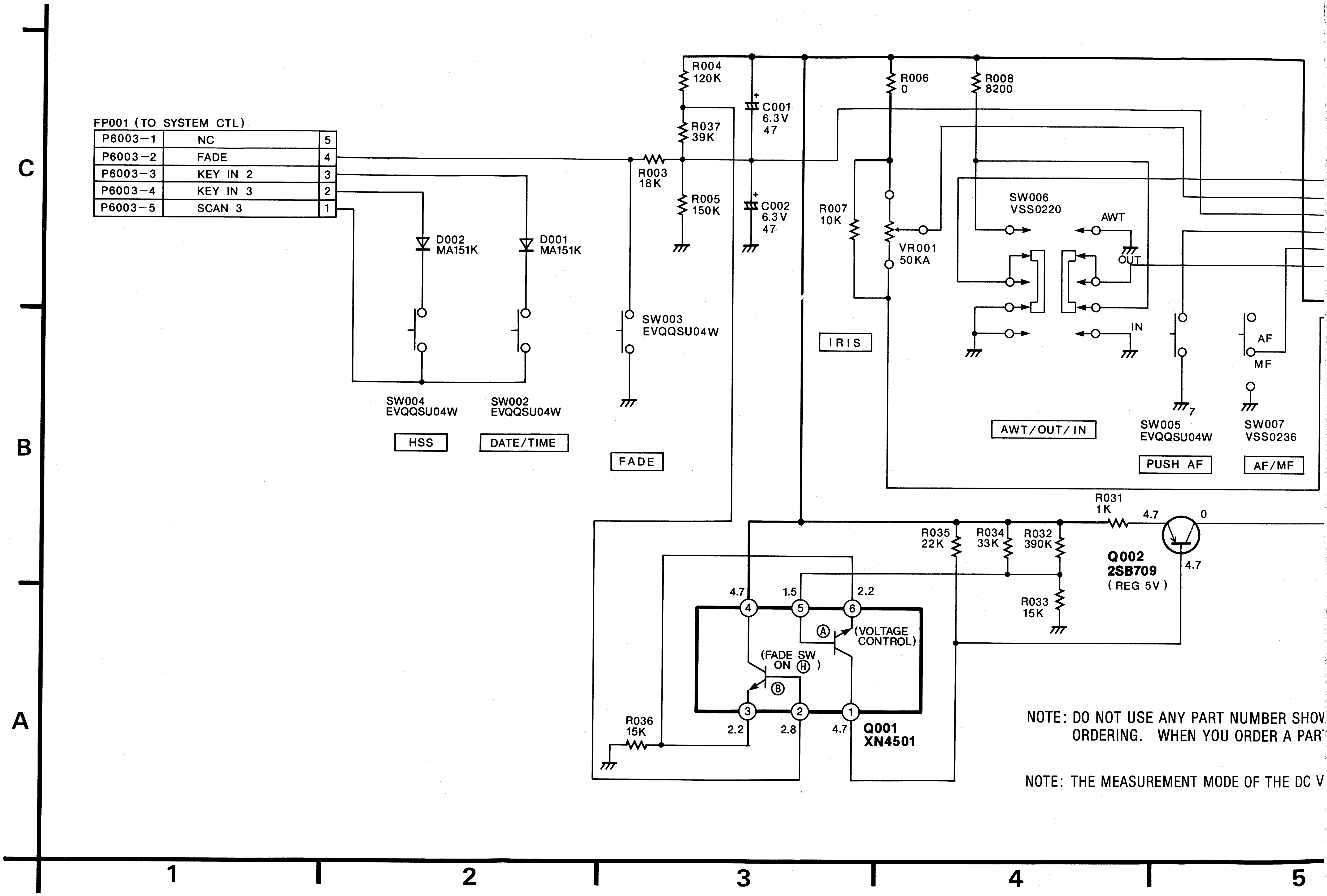
■■ MAIN SIGNAL PATH IN REC MODE

⇦□ MAIN SIGNAL PATH IN PLAYBACK MODE


DEVIATION (100KHz)
1.8MHz (R-CH)
R-CH FREQUENCY
VR4509
IC4502
(AN3932S)
R-CH DEVIATION
VR4507
EMPHASIS
LIMITER
REC
PB
DE-EMPHASIS
20KHz L.P.F.
EIGHTING
PB R-CH LEVEL
VR4506
HOLD
LIMITER
VCO (1.8MHz)
RF L.P.F.
L.P.F.
PHASE COMPARATOR
RF LIMITER
PB L-CH LEVEL
VR4504
L-CH DEVIATION
VR4502
VCO (1.4MHz)
DEVIATION (100KHz)
1.4MHz (L-CH)
L-CH FREQUENCY
VR4501
EE Ⓗ
SP Ⓛ
SP
LP
+4dB AMP
MMV (1)
TRIGGER PULSE GENERATOR (1)
FREQUENCY DOUBLER
MMV (2)
TRIGGER PULSE GENERATOR (2)
OR
TRIGGER PULSE GENERATOR (3)
DOC DETECTOR
A: MUTE Ⓛ
TP4511
LINEAR (NORMAL) Ⓗ
Hi-Fi/LINEAR DETECTOR
QR4506 (REC CURR: DOWN)
S-TAPE Ⓛ
QR4511
(S-TAPE: ON)
TP4505
REC CURRENT
VR4503
FL4501 1.8MHz L.P.F.
FL4502 1.4MHz L.P.F.
TP4506
A-H.SW (25Hz)
FM.D.REC Ⓛ
S-TAB Ⓛ
Q4522
Q4523
FUSE RESISTOR
R4562
Q4524, Q4512
REGULATOR
UNREG
D.REC 5V
REC AMP
Q4507 ~ Q4509
Hi-Fi AUDIO AMP
R-CH L-CH
1.4MHz 1.8MHz
P5502
SW1
E.D.REC Ⓗ
SW2
PB5V
SW3
SW4
Q4519
REG. 5V
(PB: ON)
QR4503
V.EE Ⓗ
Q5501
QR5501
Q5503 (PB: ON)
QR5504
Q5502
Q5505 (PB: ON)
Q5504
Q5506
QR5502
Q5508 (PB: ON)
QR5505
Q5507
Q5510 (PB: ON)
Q5509
P5501
R2 HEAD
L1 HEAD
R1 HEAD
L2 HEAD
VIDEO TAPE
A-R1 (26μm)
V-R1 (35μm)
V-L2 (35μm)
A-L2 (26μm)
FLYING ERASE HEAD
A-L1 (26μm)
V-L1 (35μm)
V-R2 (35μm)
A-R2 (26μm)
9-HEAD SYSTEM
+B
VR4510
AUDIO HEAD SW
IC4503 (AN3799S)
1/3 PG
CYL FG
MMV
FF
A.H.SW
SWITCHING PULSE GENERATOR (PHASE CONTROL)
H.AMP SW
P4506
MODE SELECT
SP Ⓛ
QR4515
QR4516
QR4514 QR4516
P4502
TIMING OF V.H.SW AND A.H.SW
TP4506 AUDIO H.SW
TP2001 VIDEO H.SW
13.2msec (90°)
IC5501 (AN3311S)
A.H.SW
H.AMP SW
PB FM
AMP
H.AMP SW
HEAD AMP

Next Page:
CAMERA OPERATION Section

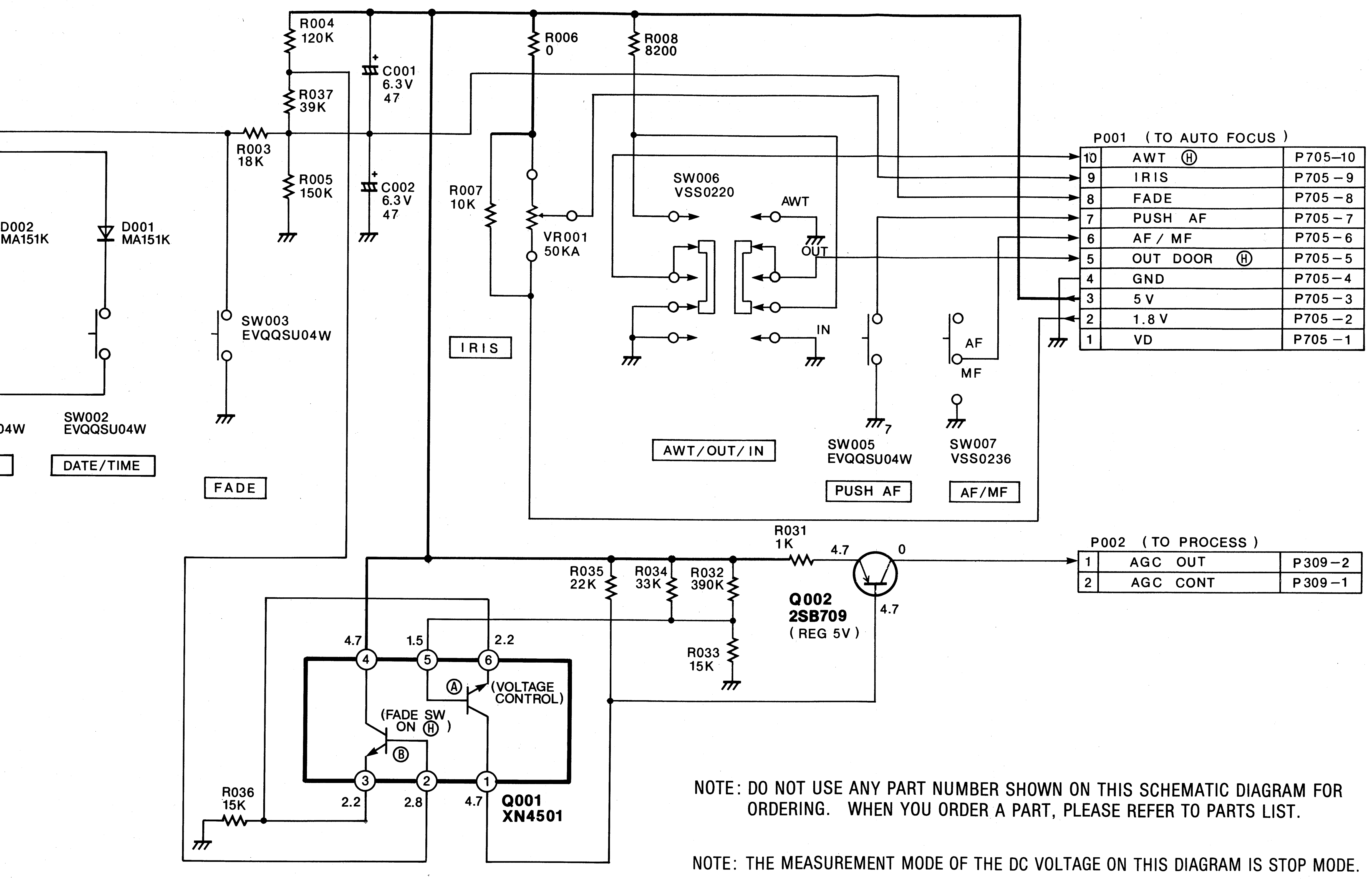
3-6. CAMERA OPERATION SCHEMATIC DIAGRAM


FP001 (TO SYSTEM CTL)
P6003−1 NC 5
P6003−2 FADE 4
P6003−3 KEY IN 2 3
P6003−4 KEY IN 3 2
P6003−5 SCAN 3 1
D002 MA151K
D001 MA151K
SW004 EVQQSU04W
SW002 EVQQSU04W
HSS
DATE/TIME
R003 18K
R004 120K
R037 39K
R005 150K
SW003 EVQQSU04W
FADE
C001 6.3V 47
C002 6.3V 47
R006 0
R008 8200
R007 10K
VR001 50KA
IRIS
SW006 VSS0220
AWT
OUT
IN
AWT/OUT/IN
SW005 EVQQSU04W
PUSH AF
AF
MF
SW007 VSS0236
AF/MF
R031 1K
4.7
0
Q002 2SB709 (REG 5V)
4.7
R035 22K
R034 33K
R032 390K
R033 15K
4.7
1.5
2.2
Ⓐ (VOLTAGE CONTROL)
(FADE SW ON Ⓗ)
Ⓑ
2.2
2.8
4.7
Q001 XN4501
R036 15K
C
B
A
1
2
3
4
5

NOTE: DO NOT USE ANY PART NUMBER SHOV
ORDERING. WHEN YOU ORDER A PAR

NOTE: THE MEASUREMENT MODE OF THE DC V

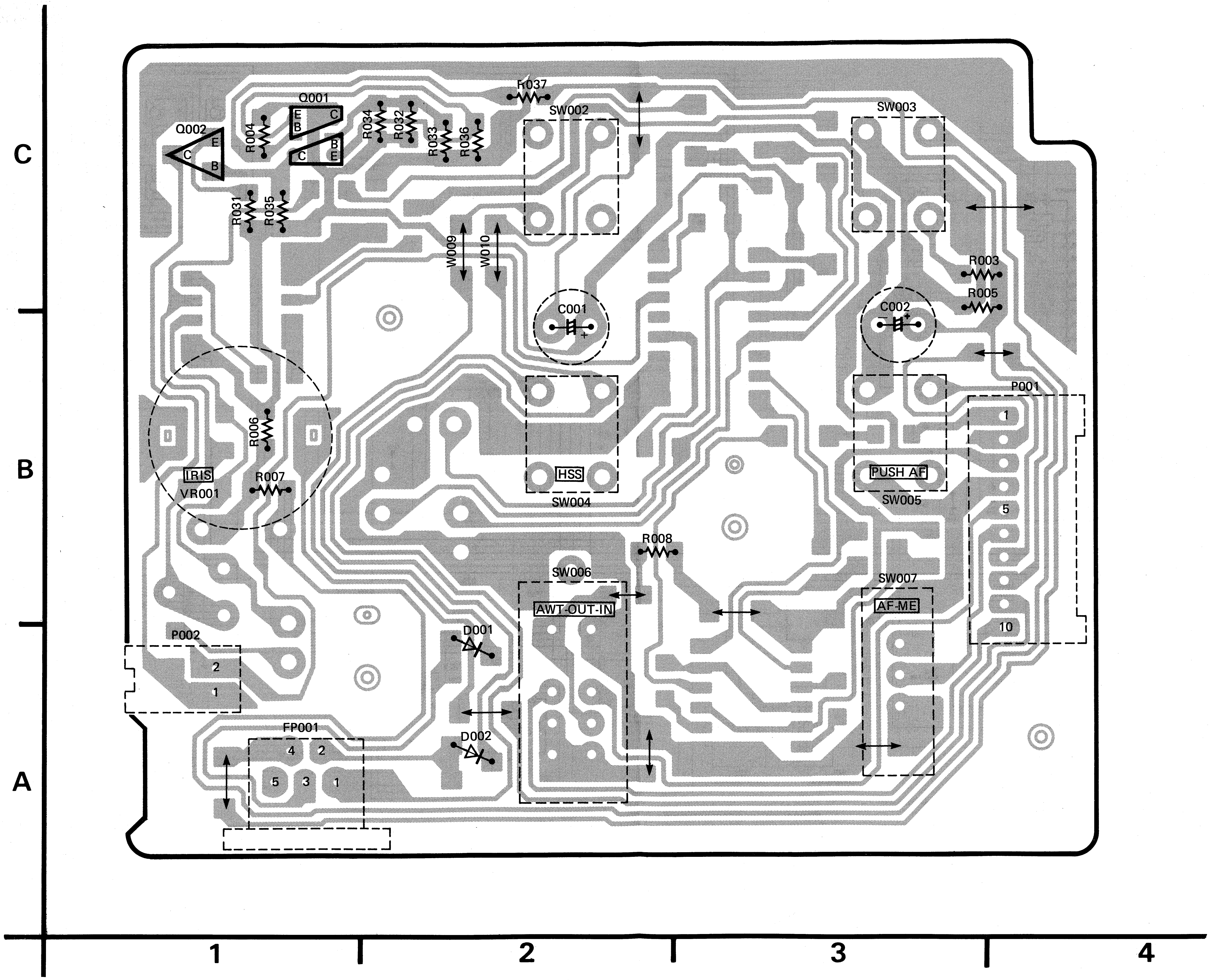
GRAM


R004
120K
R037
39K
R005
150K
R003
18K
C001
6.3V
47
C002
6.3V
47
D002
MA151K
D001
MA151K
SW003
EVQQSU04W
)4W
SW002
EVQQSU04W
DATE/TIME
FADE
R006
0
R008
8200
R007
10K
VR001
50KA
IRIS
SW006
VSS0220
AWT
OUT
IN
AWT/OUT/IN
SW005
EVQQSU04W
PUSH AF
AF
MF
SW007
VSS0236
AF/MF
P001 (TO AUTO FOCUS)
10 AWT Ⓗ P705-10
9 IRIS P705-9
8 FADE P705-8
7 PUSH AF P705-7
6 AF / MF P705-6
5 OUT DOOR Ⓗ P705-5
4 GND P705-4
3 5V P705-3
2 1.8V P705-2
1 VD P705-1
P002 (TO PROCESS)
1 AGC OUT P309-2
2 AGC CONT P309-1
R031
1K
4.7
0
4.7
Q002
2SB709
(REG 5V)
R035
22K
R034
33K
R032
390K
R033
15K
4.7
1.5
2.2
Ⓐ
(VOLTAGE CONTROL)
(FADE SW ON Ⓗ)
Ⓑ
2.2
2.8
4.7
Q001
XN4501
R036
15K
2
3
4
5
6

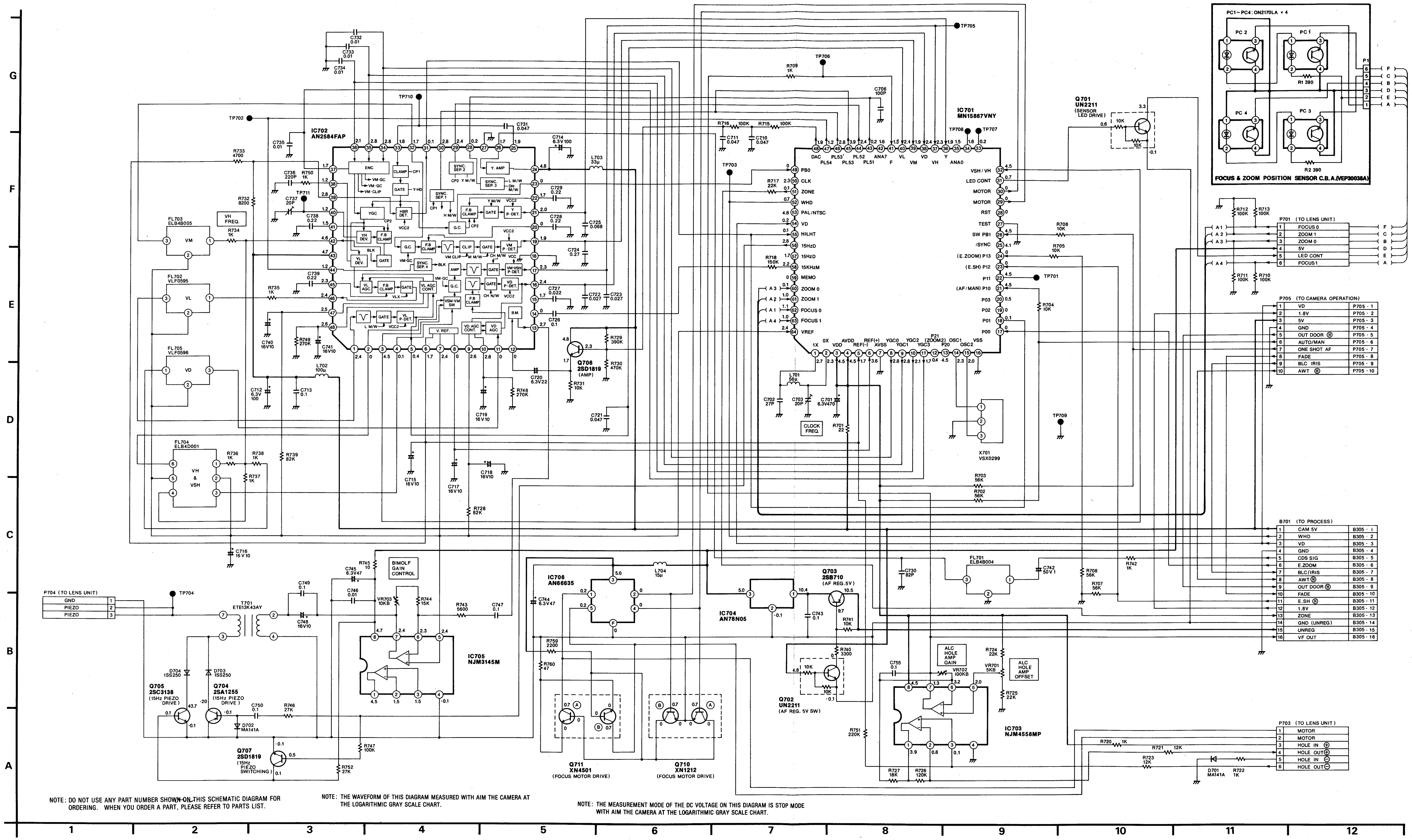
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

3-7. CAMERA OPERATION C.B.A. (VEP26047B)


C
B
A
1
2
3
4
Q002
E
C
B
Q001
E
B
C
C
B
E
R004
R034
R032
R033
R036
R037
SW002
SW003
R031
R035
W009
W010
R003
R005
C001
C002
P001
1
5
10
R006
IRIS
VR001
R007
HSS
SW004
PUSH AF
SW005
R008
SW006
AWT·OUT·IN
SW007
AF·ME
P002
2
1
D001
D002
FP001
4
2
5
3
1

3-8. AUTO FOCUS SCHEMATIC DIAGRAM

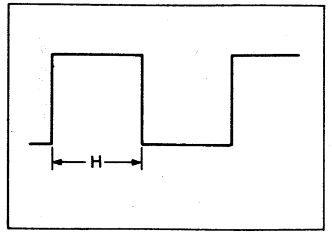

IC702 AN2584FAP
IC701 MN15867VNY
IC706 AN6663S
IC704 AN78N05
IC705 NJM3145M
IC703 NJM4558MP
Q701 UN2211 (SENSOR LED DRIVE)
Q702 UN2211 (AF REG. 5V SW)
Q703 2SB710 (AF REG. 5V)
Q704 2SA1255 (15Hz PIEZO DRIVE)
Q705 2SC3138 (15Hz PIEZO DRIVE)
Q706 2SD1819 (AMP)
Q707 2SD1819 (15Hz PIEZO SWITCHING)
Q710 XN1212 (FOCUS MOTOR DRIVE)
Q711 XN4501 (FOCUS MOTOR DRIVE)
FL701 ELB4B004
FL702 VLF0595
FL703 ELB4B005
FL704 ELB4D001
FL705 VLF0596
T701 ETE13K43AY
X701 VSX0299
BIMOLF GAIN CONTROL
CLOCK FREQ.
VH FREQ.
ALC HOLE AMP GAIN
ALC HOLE AMP OFFSET
TP701
TP702
TP703
TP704
TP705
TP706
TP707
TP708
TP709
TP710
TP711
PC1~PC4: ON2170LA × 4
FOCUS & ZOOM POSITION SENSOR C.B.A.(VEP30038A)
P704 (TO LENS UNIT)
1 GND
2 PIEZO
3 PIEZO
P701 (TO LENS UNIT)
1 FOCUS 0
2 ZOOM 1
3 ZOOM 0
4 5V
5 LED CONT
6 FOCUS 1
P705 (TO CAMERA OPERATION)
1 VD P705 - 1
2 1.8V P705 - 2
3 5V P705 - 3
4 GND P705 - 4
5 OUT DOOR Ⓗ P705 - 5
6 AUTO/MAN P705 - 6
7 ONE SHOT AF P705 - 7
8 FADE P705 - 8
9 BLC IRIS P705 - 9
10 AWT Ⓗ P705 - 10
B701 (TO PROCESS)
1 CAM 5V B305 - 1
2 WHD B305 - 2
3 VD B305 - 3
4 GND B305 - 4
5 CDS SIG B305 - 5
6 E.ZOOM B305 - 6
7 BLC/IRIS B305 - 7
8 AWT Ⓗ B305 - 8
9 OUT DOOR Ⓗ B305 - 9
10 FADE B305 - 10
11 E.SH Ⓗ B305 - 11
12 1.8V B305 - 12
13 ZONE B305 - 13
14 GND (UNREG) B305 - 14
15 UNREG B305 - 15
16 VF OUT B305 - 16
P703 (TO LENS UNIT)
1 MOTOR
2 MOTOR
3 HOLE IN ⊕
4 HOLE OUT⊕
5 HOLE IN ⊖
6 HOLE OUT⊖
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

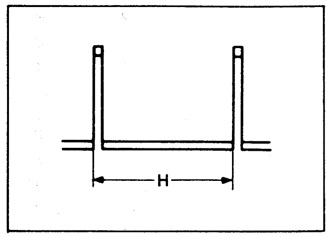
NOTE: THE WAVEFORM OF THIS DIAGRAM MEASURED WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

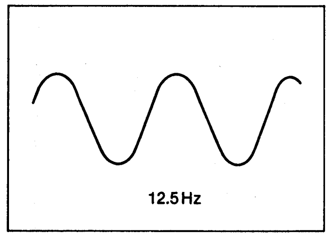
AUTO FOCUS CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 700 Series)



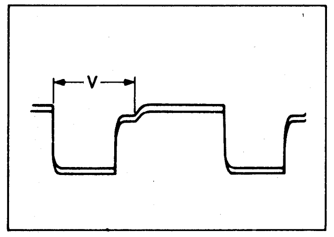
TP702 STOP
2.0V/20µsec. div. 4.5Vp-p



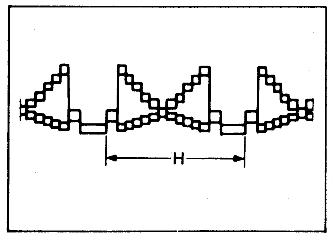
TP703 STOP
2.0V/20µsec. div. 5.0Vp-p



TP704 STOP
5.0V/20msec. div. 11Vp-p
(Convered with Lens Cap)



TP705 STOP
0.5V/5msec. div. 1.1Vp-p

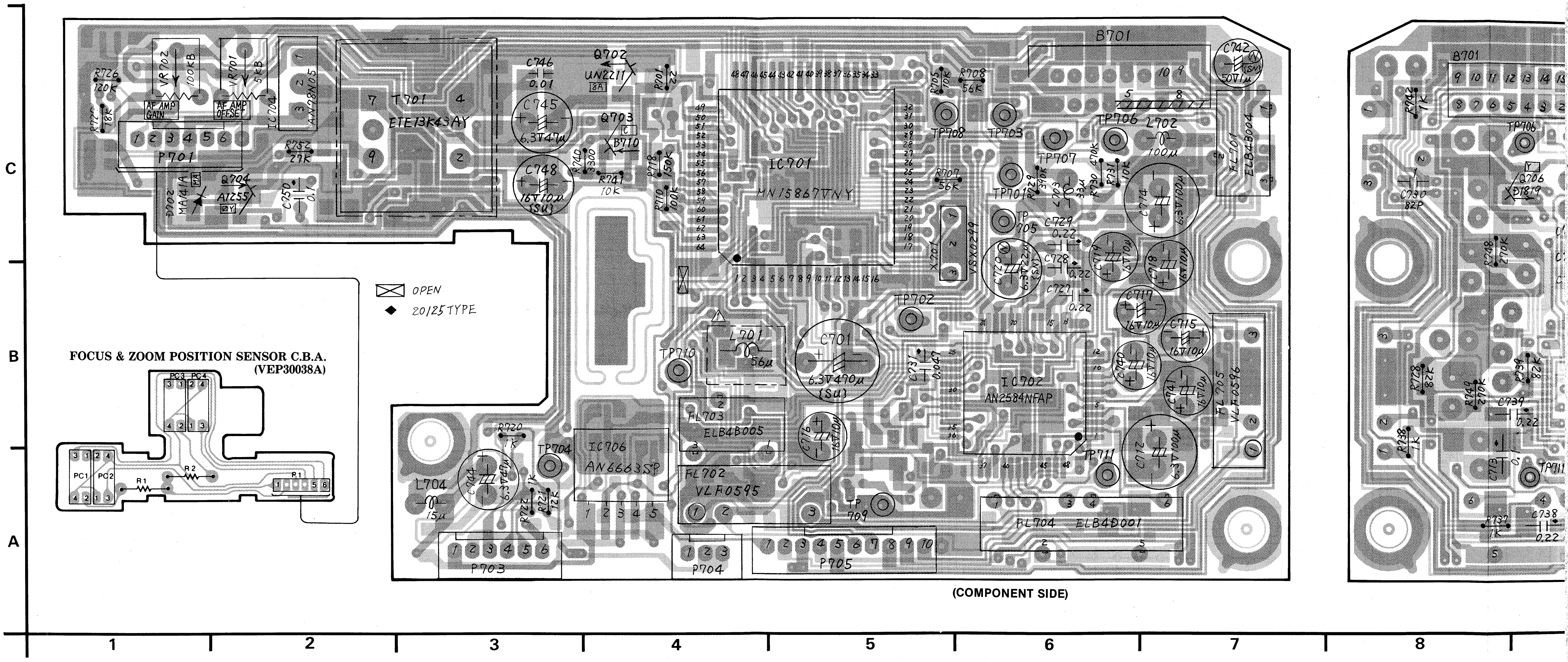


TP710 STOP
0.1V/20µsec. div. 0.4Vp-p

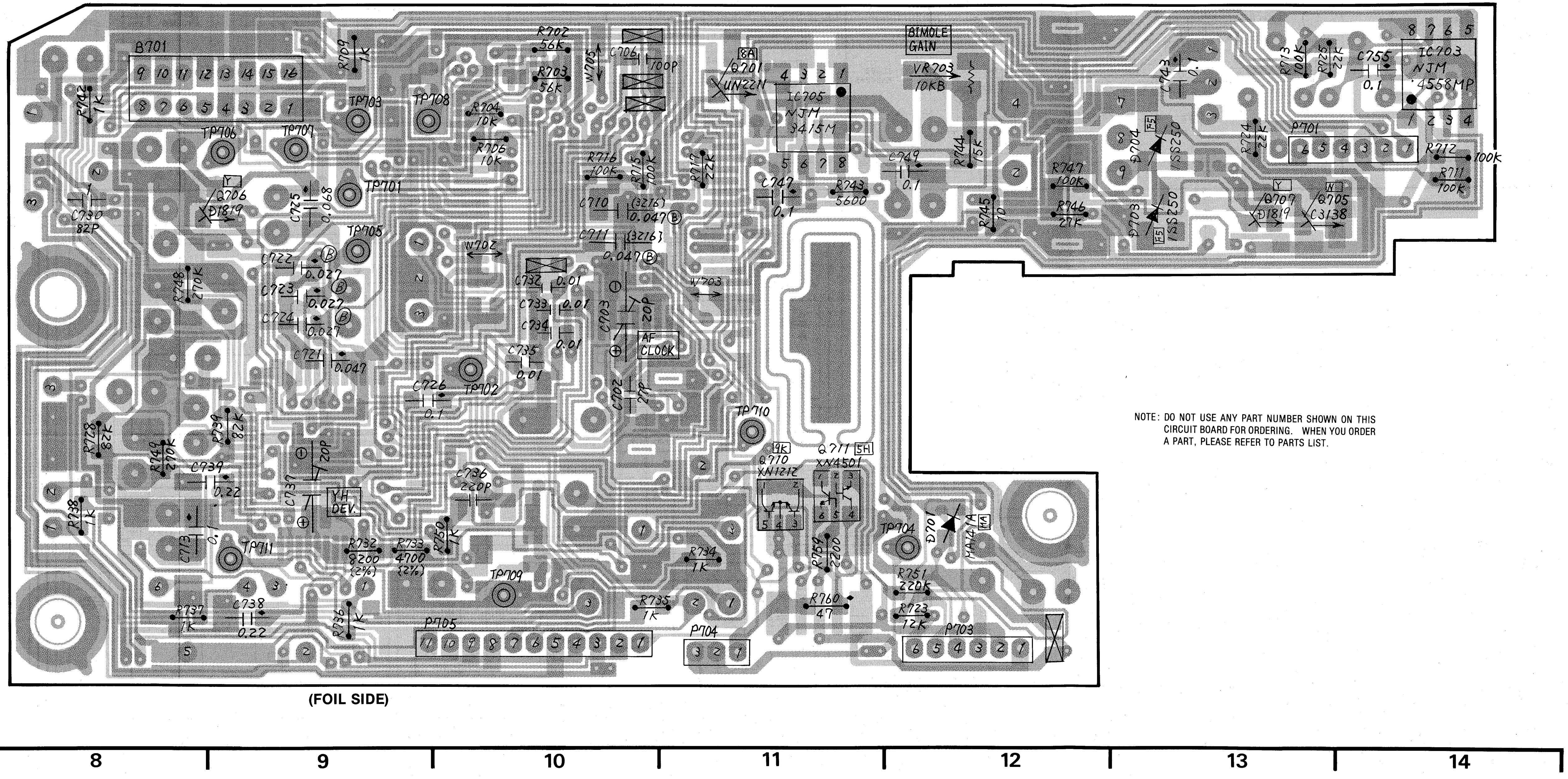
TP711 STOP
0.2V/20µsec. div. 0.7Vp-p

Back Page:
CAMERA OPERATION Section

3-9. AUTO FOCUS C.B.A. (VEP28018C)


FOCUS & ZOOM POSITION SENSOR C.B.A. (VEP30038A)
PC1
PC2
PC3
PC4
R1
R2
OPEN
◆ 20/25 TYPE
C
B
A
1
2
3
4
5
6
7
8
T701 ETE13K43AY
IC701 MN15867VNY
IC702 AN2584NFAP
IC704 AN78N05
IC706 AN6663SP
VR701 5kB
VR702 100kB
AF AMP GAIN
AF AMP OFFSET
P701
P703
P704
P705
Q702 UN2211
Q703
Q704 A1255
Q706
D702 MA141A
B701
FL101 ELB4B004
FL702 VLF0595
FL703 ELB4B005
FL704 ELB4D001
FL705 VLF0596
L701 56µ
L702 100µ
L704 15µ
C701 6.3V470µ (SU)
C712 6.3V100µ
C714 6.3V100µ
C742 50V1µ
C744 6.3V47µ
C745 6.3V47µ
C746 0.01
C748 16V10µ (SU)
C750 0.1
C729 0.22
C728 0.22
C727 0.22
C731 0.047
C730 82P
C739 0.22
C738 0.22
C713 0.1
R726 120K
R727 18K
R752 27K
R740 330
R741 10K
R701 22
R718 150K
R710 100K
R705 10K
R708 56K
R707 56K
R729 390K
R730 470K
R731 10K
R720 1K
R721 12K
R722 1K
R742 1K
R748 270K
R749 270K
R728 82K
R738 1K
R737 1K
X701 VSX0299
TP702
TP703
TP704
TP705
TP706
TP707
TP708
TP709
TP710
TP711

(COMPONENT SIDE)


B701
R742 1K
TP706
TP707
TP703
TP708
R709 1K
R702 56K
R703 56K
W705
C706 100P
Q701 UN2211
IC705 NJM 3415M
BIMOLE GAIN
VR703 10KB
C743 0.1
R713 100K
R725 22K
C755 0.1
IC703 NJM 4558MP
R704 10K
R706 10K
R716 100K
R715 100K
R717 22K
C747 0.1
R743 5600
C749 0.1
R744 15K
R747 100K
R746 27K
R745 10
D704 1SS250
D703 1SS250
R724 22K
P701
R712 100K
R711 100K
Q707 D1819
Q705 C3138
C730 82P
Q706 D1819
C725 0.068
TP701
TP705
W702
C710 (3216) 0.047
C711 (3216) 0.047
C722 0.027
C723 0.027
C724 0.027
R748 270K
C732 0.01
C733 0.01
C734 0.01
C703 20P
AF CLOCK
W703
C721 0.047
C735 0.01
C726 0.1
TP702
C702 27P
TP710
R728 82K
R739 82K
R749 270K
C739 0.22
C737 20P
YH DEV
C736 220P
Q710 XN1212
Q711 XN4501
TP704
D701 MA141A
R738 1K
C713 0.1
TP711
R732 8200 (2%)
R733 4700 (2%)
R750 1K
R734 1K
TP709
R759 2200
R751 220K
R760 47
R723 12K
R737 1K
C738 0.22
R736 1K
R735 1K
P705
P704
P703
8
9
10
11
12
13
14

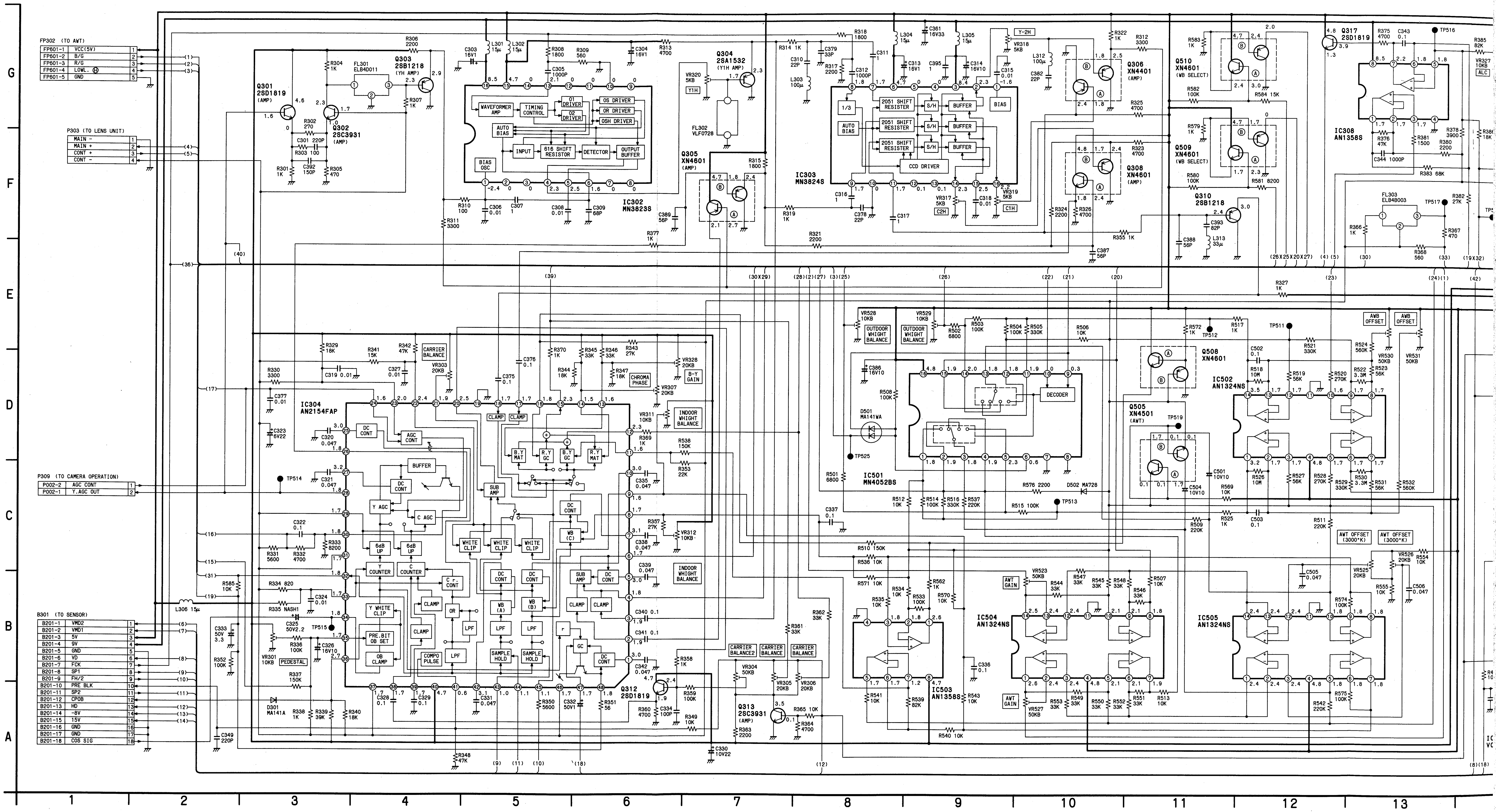
(FOIL SIDE)

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS CIRCUIT BOARD FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

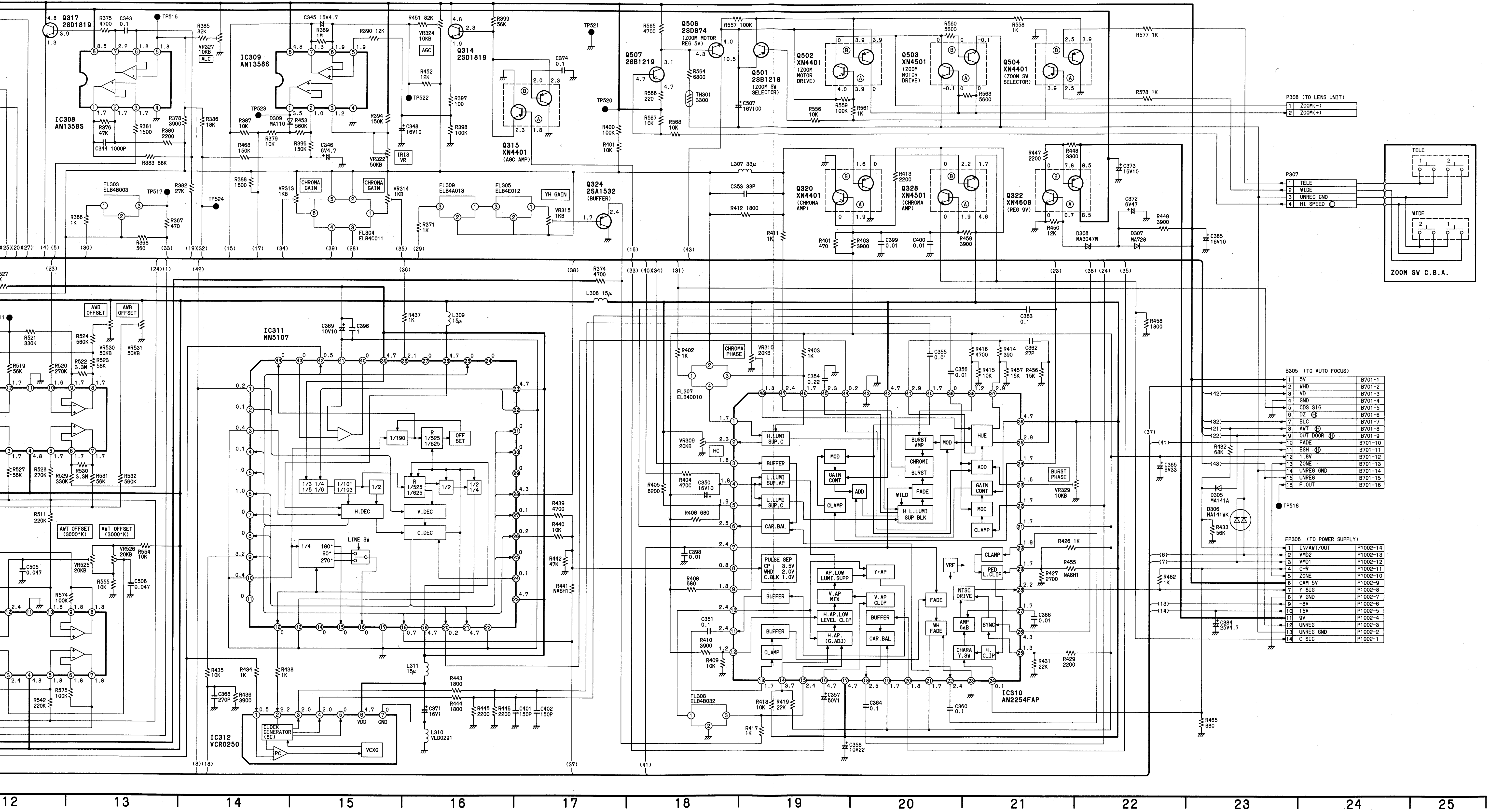
AUTO FOCUS C.B.A.		
Transistor		
Q701	C-11	Ⓕ
Q702	C-4	©
Q703	C-4	©
Q704	C-2	©
Q705	C-13	Ⓕ
Q706	C-9	Ⓕ
Q707	C-13	Ⓕ
Q710	B-11	Ⓕ
Q711	B-11	Ⓕ
Integrated Circuit		
IC701	C-5	©
IC702	B-6	©
IC703	C-14	Ⓕ
IC704	C-2	©
IC705	C-11	Ⓕ
IC706	B-4	©
Test Point		
TP701	C-6	©
TP701	C-9	Ⓕ
TP702	B-5	©
TP702	B-10	Ⓕ
TP703	C-6	©
TP703	C-9	Ⓕ
TP704	B-3	©
TP704	B-12	Ⓕ
TP705	C-6	©
TP705	C-9	Ⓕ
TP706	C-6	©
TP706	C-9	Ⓕ
TP707	C-6	©
TP707	C-9	Ⓕ
TP708	C-5	©
TP708	C-9	Ⓕ
TP709	A-5	©
TP709	A-10	Ⓕ
TP710	B-4	©
TP710	B-11	Ⓕ
TP711	A-6	©
TP711	A-9	Ⓕ
Adjustment		
C703	B-10	Ⓕ
C737	B-9	Ⓕ
VR701	C-2	©
VR702	C-1	©
VR703	C-12	Ⓕ
Connector		
B701	C-6	©
B701	C-8	Ⓕ
P1	A-2	©
P701	C-1	©
P701	C-13	Ⓕ
P703	A-3	©
P703	A-12	Ⓕ
P704	A-4	©
P704	A-11	Ⓕ
P705	A-5	©
P705	A-10	Ⓕ

ADDRESS INFORMATION
©... COMPONENT SIDE
Ⓕ... FOIL SIDE

3-10. PROCESS SCHEMATIC DIAGRAM

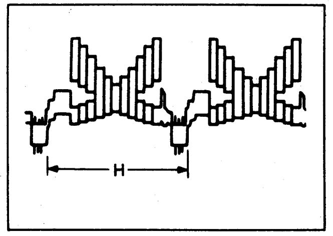

FP302 (TO AWT)
FP601-1 VCC(5V)
FP601-2 B/G
FP601-3 R/G
FP601-4 LOWL.
FP601-5 GND
P303 (TO LENS UNIT)
MAIN -
MAIN +
CONT +
CONT -
P309 (TO CAMERA OPERATION)
P002-2 AGC CONT
P002-1 Y.AGC OUT
B301 (TO SENSOR)
B201-1 VMD2
B201-2 VMD1
B201-3 5V
B201-4 9V
B201-5 GND
B201-6 VD
B201-7 FCK
B201-8 SP1
B201-9 FH/2
B201-10 PRE BLK
B201-11 SP2
B201-12 CPOB
B201-13 HD
B201-14 -8V
B201-15 15V
B201-16 GND
B201-17 GND
B201-18 COS SIG
Q301 2SD1819 (AMP)
Q302 2SC3931 (AMP)
Q303 2SB1218 (YH AMP)
FL301 ELB4D011
IC302 MN3823S
WAVEFORMER AMP
TIMING CONTROL
01 DRIVER
02 DRIVER
OS DRIVER
OR DRIVER
OSH DRIVER
AUTO BIAS
INPUT
616 SHIFT RESISTOR
DETECTOR
OUTPUT BUFFER
BIAS OSC
Q304 2SA1532 (Y1H AMP)
FL302 VLF0728
Q305 XN4601 (AMP)
IC303 MN3824S
2051 SHIFT RESISTER
S/H
BUFFER
BIAS
CCD DRIVER
1/3
Y-2H
Y1H
C2H
C1H
Q306 XN4401 (AMP)
Q308 XN4601 (AMP)
Q510 XN4601 (WB SELECT)
Q509 XN4601 (WB SELECT)
Q310 2SB1218
Q317 2SD1819
IC308 AN1358S
FL303 ELB4B003
ALC
TP516
TP517
IC304 AN2154FAP
CARRIER BALANCE
CHROMA PHASE
B-Y GAIN
INDOOR WHIGHT BALANCE
DC CONT
AGC CONT
BUFFER
Y AGC
C AGC
6dB UP
Y COUNTER
C COUNTER
Y WHITE CLIP
PRE.BIT OB SET
OB CLAMP
COMPO PULSE
PEDESTAL
CLAMP
B.Y MAT
R.Y GC
B.Y GC
R.Y MAT
SUB AMP
WHITE CLIP
WB (A)
WB (B)
WB (C)
LPF
SAMPLE HOLD
GC
Cr CONT
OR
TP514
TP515
D301 MA141A
L306 15μ
Q312 2SD1819
Q313 2SC3931 (AMP)
CARRIER BALANCE2
OUTDOOR WHIGHT BALANCE
IC501 MN4052BS
DECODER
D501 MA141WA
D502 MA728
TP525
TP513
TP512
TP511
TP519
IC503 AN1358S
IC504 AN1324NS
IC505 AN1324NS
AWT GAIN
Q508 XN4601
Q505 XN4501 (AWT)
IC502 AN1324NS
AWB OFFSET
AWT OFFSET (3000°K)
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13

Back Page:
AUTO FOCUS Section

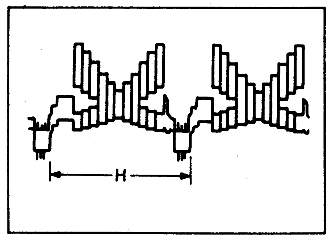

Q317 2SD1819
IC308 AN1358S
IC309 AN1358S
Q314 2SD1819
Q315 XN4401 (AGC AMP)
Q324 2SA1532 (BUFFER)
Q506 2SD874 (ZOOM MOTOR REG 5V)
Q507 2SB1219
Q501 2SB1218 (ZOOM SW SELECTOR)
Q502 XN4401 (ZOOM MOTOR DRIVE)
Q503 XN4501 (ZOOM MOTOR DRIVE)
Q504 XN4401 (ZOOM SW SELECTOR)
Q320 XN4401 (CHROMA AMP)
Q328 XN4501 (CHROMA AMP)
Q322 XN4608 (REG 9V)
FL303 ELB4B003
FL304 ELB4C011
FL309 ELB4A013
FL305 ELB4E012
FL307 ELB4D010
FL308 ELB4B032
VR327 10KB ALC
VR324 10KB AGC
VR322 50KB IRIS VR
VR313 1KB CHROMA GAIN
VR314 1KB CHROMA GAIN
VR315 1KB YH GAIN
VR310 20KB CHROMA PHASE
VR309 20KB HC
VR329 10KB BURST PHASE
VR530 50KB AWB OFFSET
VR531 50KB AWB OFFSET
VR525 20KB AWT OFFSET (3000°K)
VR526 20KB AWT OFFSET (3000°K)
IC311 MN5107
1/190
R 1/525 1/625
OFF SET
1/3 1/4 1/5 1/6
1/101 1/103
1/2
H.DEC
V.DEC
C.DEC
R 1/525 1/625
1/2 1/4
1/4 180° 90° 270°
LINE SW
IC312 VCR0250
CLOCK GENERATOR (SC)
PC
VCXO
VDD
GND
L310 VLD0291
IC310 AN2254FAP
H.LUMI SUP.C
BUFFER
L.LUMI SUP.AP
L.LUMI SUP.C
CAR.BAL
PULSE SEP CP 3.5V WHD 2.0V C.BLK 1.0V
AP.LOW LUMI.SUPP
Y+AP
V.AP MIX
V.AP CLIP
H.AP.LOW LEVEL CLIP
H.AP. (G.ADJ)
CLAMP
MOD
GAIN CONT
ADD
BURST AMP
CHROMI + BURST
FADE
WILD
H L.LUMI SUP BLK
HUE
VRF
PED L.CLIP
NTSC DRIVE
AMP 6dB
SYNC
CHARA Y.SW
H. CLIP
WH FADE
TP516
TP517
TP521
TP520
TP522
TP523
TP524
TP518
D305 MA141A
D306 MA141WK
D307 MA728
D308 MA3047M
D309 MA110
TH301 3300
P308 (TO LENS UNIT)
1 ZOOM(-)
2 ZOOM(+)
P307
1 TELE
2 WIDE
3 UNREG GND
4 HI SPEED Ⓛ
TELE
WIDE
ZOOM SW C.B.A.
B305 (TO AUTO FOCUS)
1 5V B701-1
2 WHD B701-2
3 VD B701-3
4 GND B701-4
5 CDS SIG B701-5
6 DZ Ⓗ B701-6
7 BLC B701-7
8 AWT Ⓗ B701-8
9 OUT DOOR Ⓗ B701-9
10 FADE B701-10
11 ESH Ⓗ B701-11
12 1.8V B701-12
13 ZONE B701-13
14 UNREG GND B701-14
15 UNREG B701-15
16 F.OUT B701-16
FP306 (TO POWER SUPPLY)
1 IN/AWT/OUT P1002-14
2 VMD2 P1002-13
3 VMD1 P1002-12
4 CHR P1002-11
5 ZONE P1002-10
6 CAM 5V P1002-9
7 Y SIG P1002-8
8 V GND P1002-7
9 -8V P1002-6
10 15V P1002-5
11 9V P1002-4
12 UNREG P1002-3
13 UNREG GND P1002-2
14 C SIG P1002-1
12
13
14
15
16
17
18
19
20
21
22
23
24
25

3-11. PROCESS C.B.A. (VEP23089A)

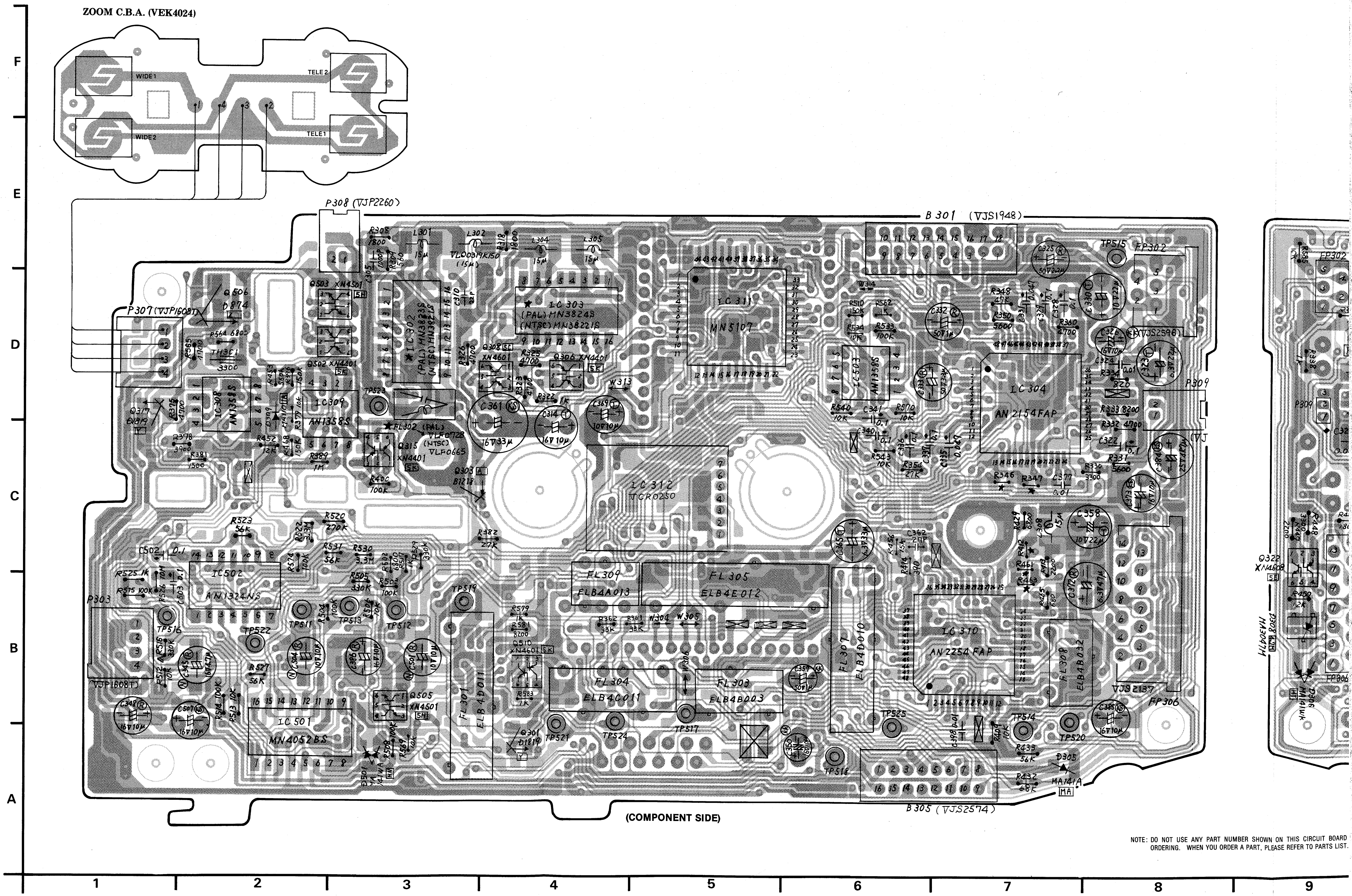
PROCESS CIRCUIT TP (Test Point)
WAVE FORM (REF. NO. 500 Series)



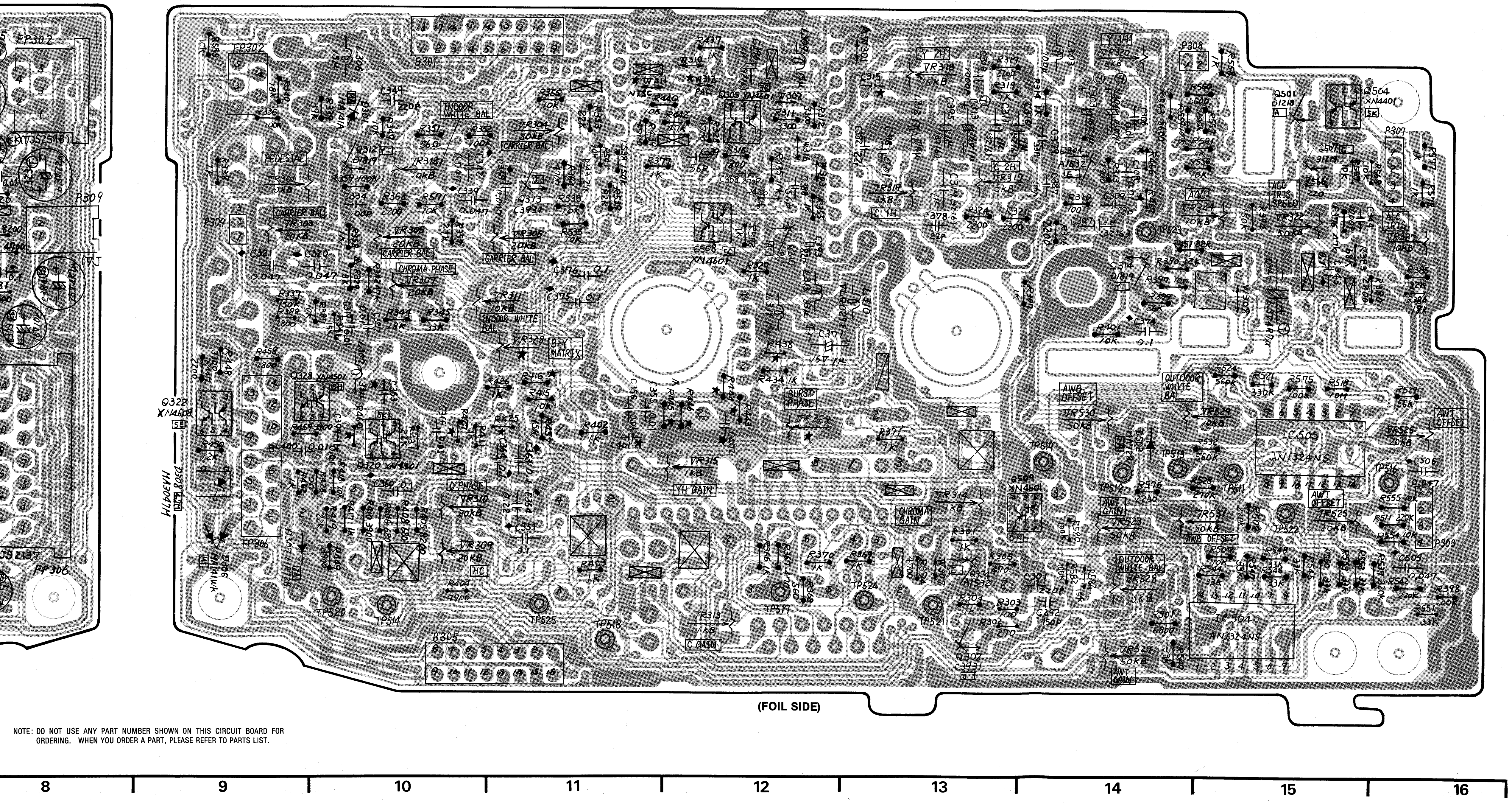
TP514 STOP
0.1V/20µsec. div. 0.32Vp-p



TP515 STOP
0.1V/20µsec. div. 0.5Vp-p


ZOOM C.B.A. (VEK4024)
WIDE1
WIDE2
TELE2
TELE1
P308 (VJP2260)
B301 (VJS1948)
P307 (VJP1608T)
P303
(VJP1608T)
P309
B305 (VJS2574)
IC302 (PAL) MN3823S (NTSC) MN3821S
IC303 (PAL) MN3824S (NTSC) MN3822S
IC311 MN5107
IC503 AN1358S
IC304 AN2154FAP
IC308 AN1358S
IC309 AN1358S
IC312 JCR0250
IC502 AN1324NS
IC501 MN4052BS
IC310 AN2254FAP
FL309 ELB4A013
FL305 ELB4E012
FL304 ELB4C011
FL303 ELB4B003
FL307 ELB4D010
FL301 ELB4D011
FL308 ELB4B032
FL302 (PAL) VLF0728 (NTSC) VLF0665
TP514
TP515
TP516
TP511
TP513
TP512
TP519
TP522
TP521
TP524
TP517
TP518
TP520
TP523
TP525
FP302
FP306
(COMPONENT SIDE)
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS CIRCUIT BOARD
ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.


FP302
P309
FP306
B301
B305
PEDESTAL
CARRIER BAL
CHROMA PHASE
INDOOR WHITE BAL
B-Y MATRIX
BURST PHASE
C PHASE
YH GAIN
HC
C GAIN
CHROMA GAIN
Y 2H
Y 1H
C 1H
0 2H
AGC
ALC IRIS SPEED
ALC IRIS
AWB OFFSET
OUTDOOR WHITE BAL
AWT OFFSET
AWT GAIN
AWB GAIN
AWT GAIN
IC 505
AN1324NS
IC 504
AN1324NS
TP511
TP512
TP513
TP514
TP516
TP517
TP518
TP519
TP520
TP521
TP522
TP523
TP524
TP525
8
9
10
11
12
13
14
15
16

(FOIL SIDE)

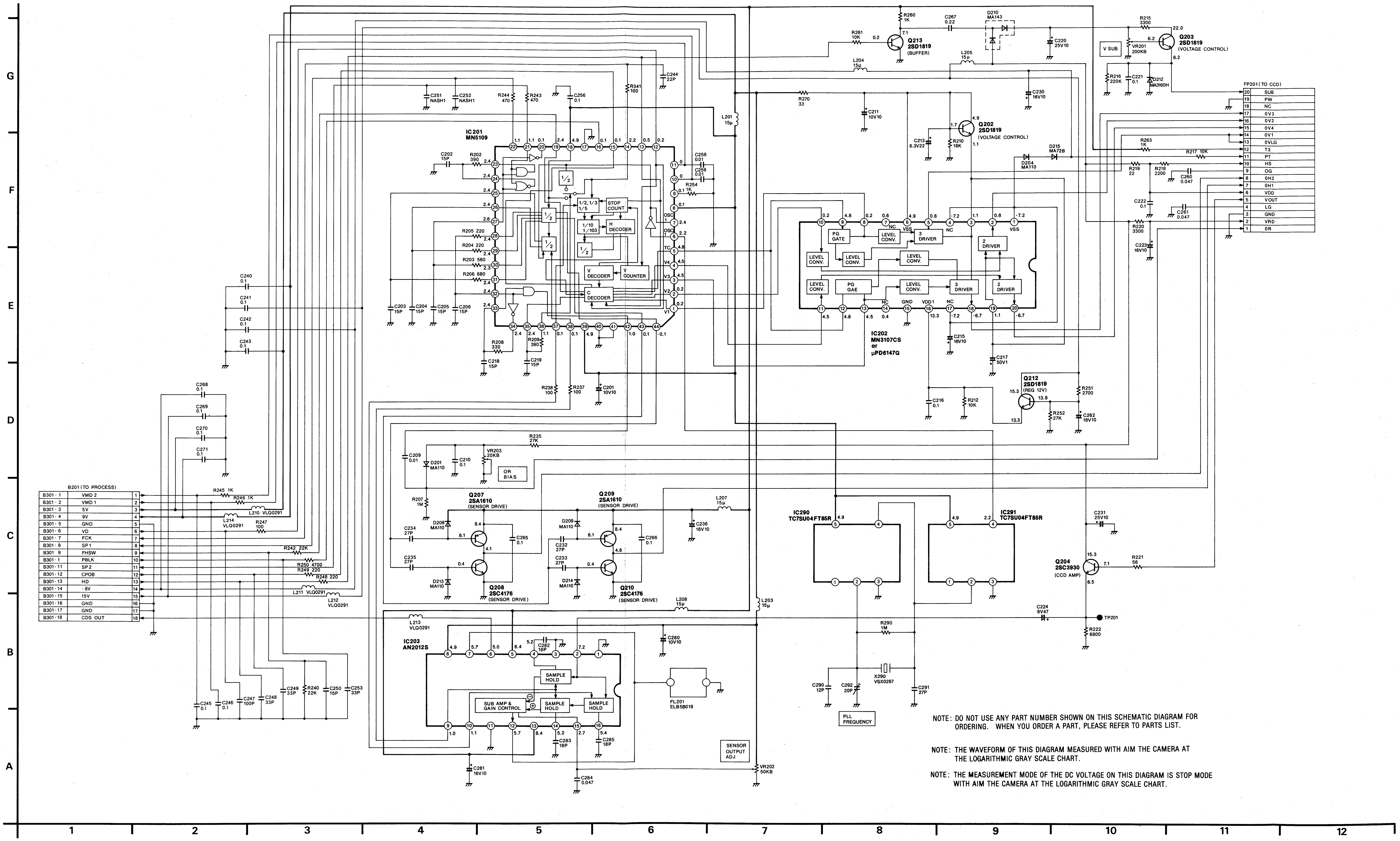
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS CIRCUIT BOARD FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

PROCESS C.B.A.

Transistor		
Q301	A-4	©
Q302	A-13	Ⓕ
Q303	C-3	©
Q304	D-14	Ⓕ
Q305	D-12	Ⓕ
Q306	D-4	©
Q308	D-4	©
Q310	D-12	Ⓕ
Q312	D-10	Ⓕ
Q313	D-11	Ⓕ
Q314	C-14	Ⓕ
Q315	C-3	©
Q317	D-1	©
Q320	B-10	Ⓕ
Q322	C-9	Ⓕ
Q324	B-13	Ⓕ
Q328	C-9	Ⓕ
Q501	D-15	Ⓕ
Q502	D-2	©
Q503	D-2	©
Q504	D-16	Ⓕ
Q505	B-3	©
Q506	D-2	©
Q507	D-15	Ⓕ
Q508	D-12	Ⓕ
Q509	B-14	Ⓕ
Q510	B-4	©
Integrated Circuit		
IC302	D-3	©
IC303	D-4	©
IC304	D-7	©
IC308	D-2	©
IC309	D-2	©
IC310	B-7	©
IC311	D-5	©
IC312	C-5	©
IC501	A-2	©
IC502	B-2	©
IC503	D-6	©
IC504	A-15	Ⓕ
IC505	B-15	Ⓕ
Test Point		
TP511	B-2	©
TP511	B-15	Ⓕ
TP512	B-3	©
TP512	B-14	Ⓕ
TP513	B-3	©
TP513	B-14	Ⓕ
TP514	B-7	©
TP514	A-10	Ⓕ
TP515	E-8	©
TP515	E-9	Ⓕ
TP516	B-1	©
TP516	B-16	Ⓕ
TP517	A-5	©
TP517	A-12	Ⓕ
TP518	A-6	©
TP518	A-11	Ⓕ
TP519	B-3	©
TP519	B-14	Ⓕ
TP520	A-7	©
TP520	A-10	Ⓕ
TP521	A-4	©
TP521	A-13	Ⓕ
TP522	B-2	©
TP522	B-15	Ⓕ
TP523	D-3	©
TP523	D-14	Ⓕ
TP524	A-4	©
TP524	B-13	Ⓕ
TP525	B-6	©
TP525	A-11	Ⓕ
Adjustment		
VR301	D-9	Ⓕ
VR303	D-9	Ⓕ
VR304	D-11	Ⓕ
VR305	D-10	Ⓕ
VR306	D-11	Ⓕ
VR307	C-10	Ⓕ
VR309	B-10	Ⓕ
VR310	B-10	Ⓕ
VR311	C-11	Ⓕ
VR312	D-10	Ⓕ
VR313	A-12	Ⓕ
VR314	B-13	Ⓕ
VR315	B-12	Ⓕ
VR317	D-13	Ⓕ
VR318	E-13	Ⓕ
VR319	D-13	Ⓕ
VR320	E-14	Ⓕ
VR322	D-15	Ⓕ
VR324	D-14	Ⓕ
VR327	D-16	Ⓕ
VR328	C-11	Ⓕ
VR329	C-12	Ⓕ
VR523	B-14	Ⓕ
VR525	B-15	Ⓕ
VR526	C-16	Ⓕ
VR527	A-14	Ⓕ
VR528	B-14	Ⓕ
VR529	C-15	Ⓕ
VR530	C-14	Ⓕ
VR531	B-15	Ⓕ
Connector		
B301	E-6	©
B301	E-10	Ⓕ
B305	A-6	©
B305	A-10	Ⓕ
FP302	E-8	©
FP302	E-9	Ⓕ
FP306	B-8	©
FP306	B-9	Ⓕ
P303	B-1	©
P303	B-16	Ⓕ
P307	D-1	©
P307	D-16	Ⓕ
P308	E-3	©
P308	E-14	Ⓕ
P309	D-8	©
P309	D-9	Ⓕ

ADDRESS INFORMATION
©... COMPONENT SIDE
Ⓕ... FOIL SIDE

3-12. SENSOR SCHEMATIC DIAGRAM

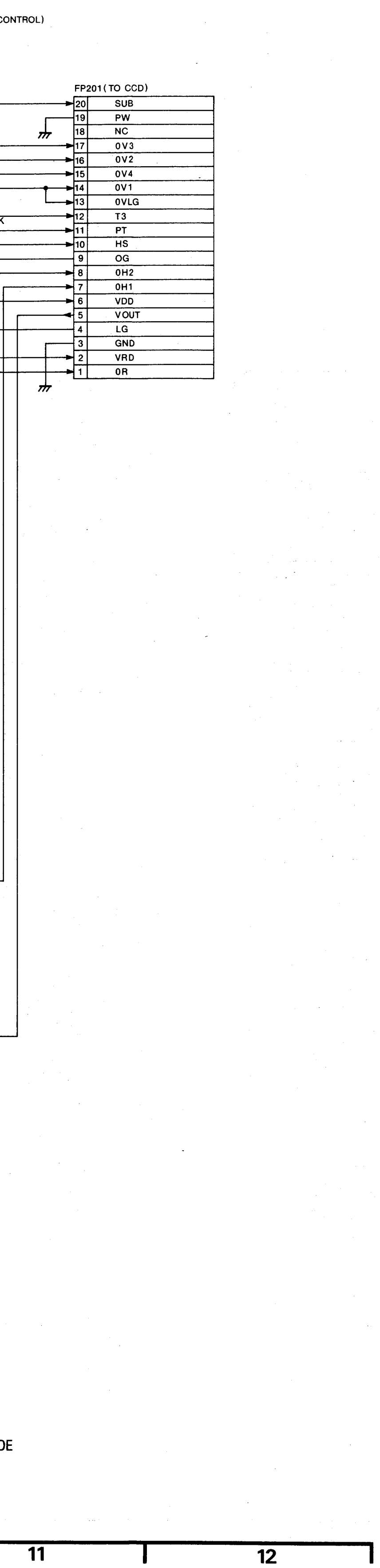

IC201
MN5109
IC202
MN3107CS
or
μPD6147G
IC203
AN2012S
IC290
TC7SU04FT85R
IC291
TC7SU04FT85R
Q213
2SD1819
(BUFFER)
Q203
2SD1819
(VOLTAGE CONTROL)
Q202
2SD1819
(VOLTAGE CONTROL)
Q212
2SD1819
(REG 12V)
Q207
2SA1610
(SENSOR DRIVE)
Q209
2SA1610
(SENSOR DRIVE)
Q208
2SC4176
(SENSOR DRIVE)
Q210
2SC4176
(SENSOR DRIVE)
Q204
2SC3930
(CCD AMP)
FP201 (TO CCD)
SUB
PW
NC
0V3
0V2
0V4
0V1
0VLG
T3
PT
HS
OG
0H2
0H1
VDD
VOUT
LG
GND
VRD
0R
B201 (TO PROCESS)
B301 - 1 VMD 2
B301 - 2 VMD 1
B301 - 3 5V
B301 - 4 9V
B301 - 5 GND
B301 - 6 VD
B301 - 7 FCK
B301 - 8 SP1
B301 - 9 FHSW
B301 - 1 PBLK
B301 - 11 SP2
B301 - 12 CPOB
B301 - 13 HD
B301 - 14 -8V
B301 - 15 15V
B301 - 16 GND
B301 - 17 GND
B301 - 18 CDS OUT
V SUB
OR BIAS
SENSOR OUTPUT ADJ
PLL FREQUENCY
STOP COUNT
H DECODER
V DECODER
V COUNTER
C DECODER
PG GATE
PG GAE
LEVEL CONV.
3 DRIVER
2 DRIVER
SAMPLE HOLD
SUB AMP & GAIN CONTROL
FL201
ELB5B019
X290
VSX0287
TP201
D210
MA143
D204
MA110
D215
MA72B
D212
MA3160H
D201
MA110
VR203
20KB
VR201
200KB
VR202
50KB
L201
L203
L204
L205
L207
L208
L210 VLQ0291
L211 VLQ0291
L212 VLQ0291
L213 VLQ0291
L214 VLQ0291
1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

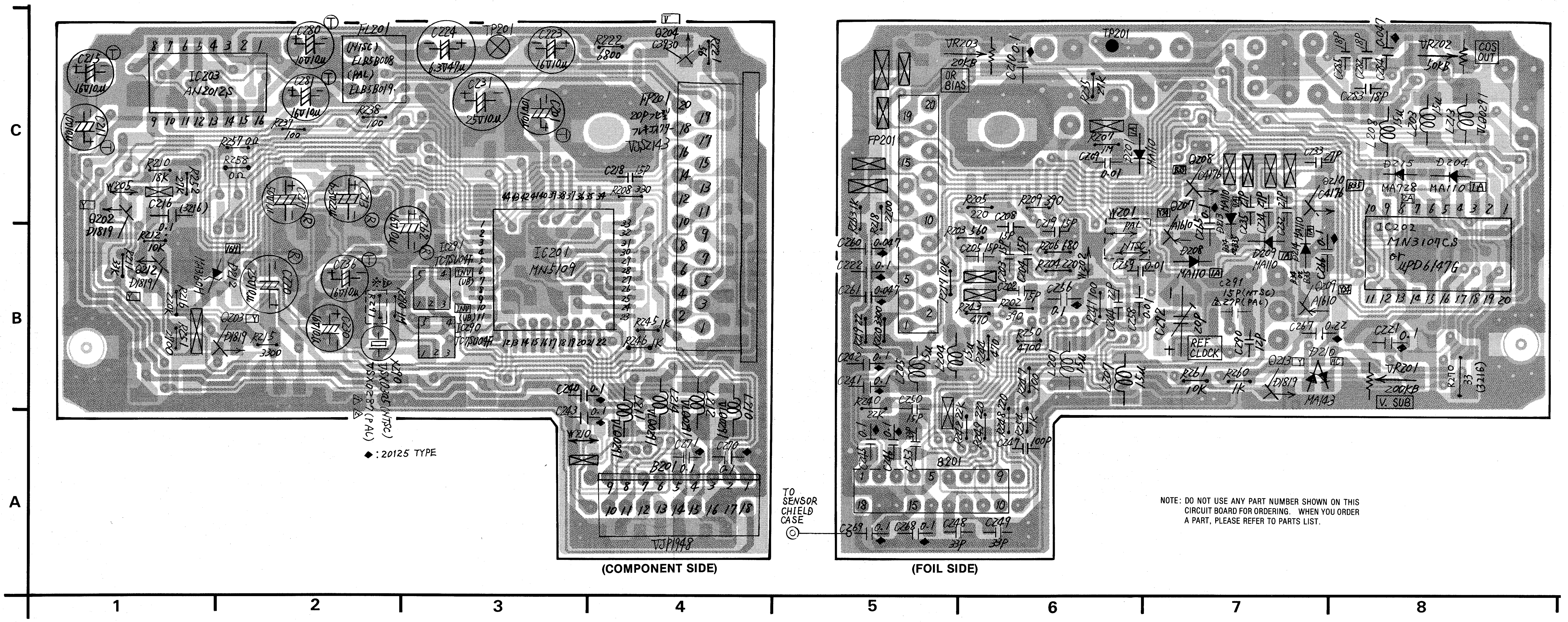
NOTE: THE WAVEFORM OF THIS DIAGRAM MEASURED WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

Back Page:
PROCESS Section

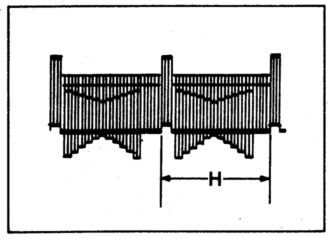

CONTROL)
FP201(TO CCD)
20 SUB
19 PW
18 NC
17 0V3
16 0V2
15 0V4
14 0V1
13 0VLG
12 T3
11 PT
10 HS
9 OG
8 OH2
7 OH1
6 VDD
5 VOUT
4 LG
3 GND
2 VRD
1 OR
DE
11
12

3-13. SENSOR C.B.A. (VEP22081A)


C
B
A
1
2
3
4
5
6
7
8
IC203 AN2012S
IC201 MN5109
IC202 MN3109CS or µPD6147G
FP201
B201
TP201
VR201
VR202
VR203
REF CLOCK
V. SUB
COS OUT
OR BIAS
◆ : 20125 TYPE
TO SENSOR CHIELD CASE
(COMPONENT SIDE)
(FOIL SIDE)

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS CIRCUIT BOARD FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

SENSOR CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 200 Series)

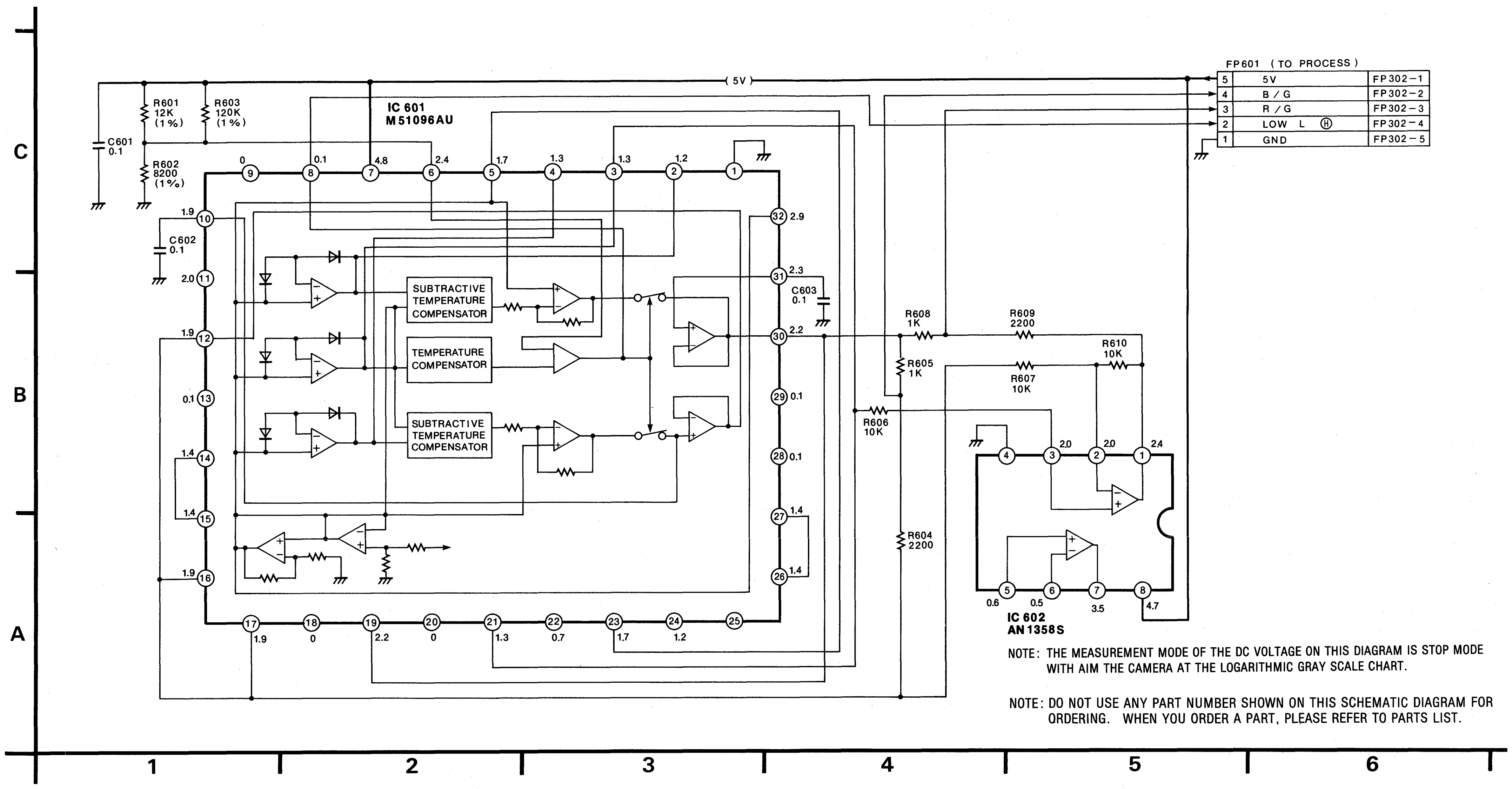


TP201 STOP
0.2V/20µsec. div. 0.6Vp-p

SENSOR C.B.A.					
Transistor			**Test Point**		
Q202	C-2	©	TP201	C-2	©
Q203	B-2	©	TP201	C-6	Ⓕ
Q204	C-3	©	**Adjustment**		
Q207	C-7	Ⓕ			
Q208	C-7	Ⓕ	C292	B-7	Ⓕ
Q209	B-7	Ⓕ	VR201	B-8	Ⓕ
Q210	C-7	Ⓕ	VR202	C-8	Ⓕ
Q212	B-1	©	VR203	C-6	Ⓕ
Q213	B-7	Ⓕ	**Connector**		
Integrated Circuit			B201	A-4	©
IC201	B-3	©	B201	B-5	Ⓕ
IC202			FP201	C-3	©
IC203	C-1	©	FP201	C-5	Ⓕ
IC290	B-3	©			
IC291	B-3	©			

ADDRESS INFORMATION
©... COMPONENT SIDE
Ⓕ... FOIL SIDE

3-14. AWT (3) SCHEMATIC DIAGRAM

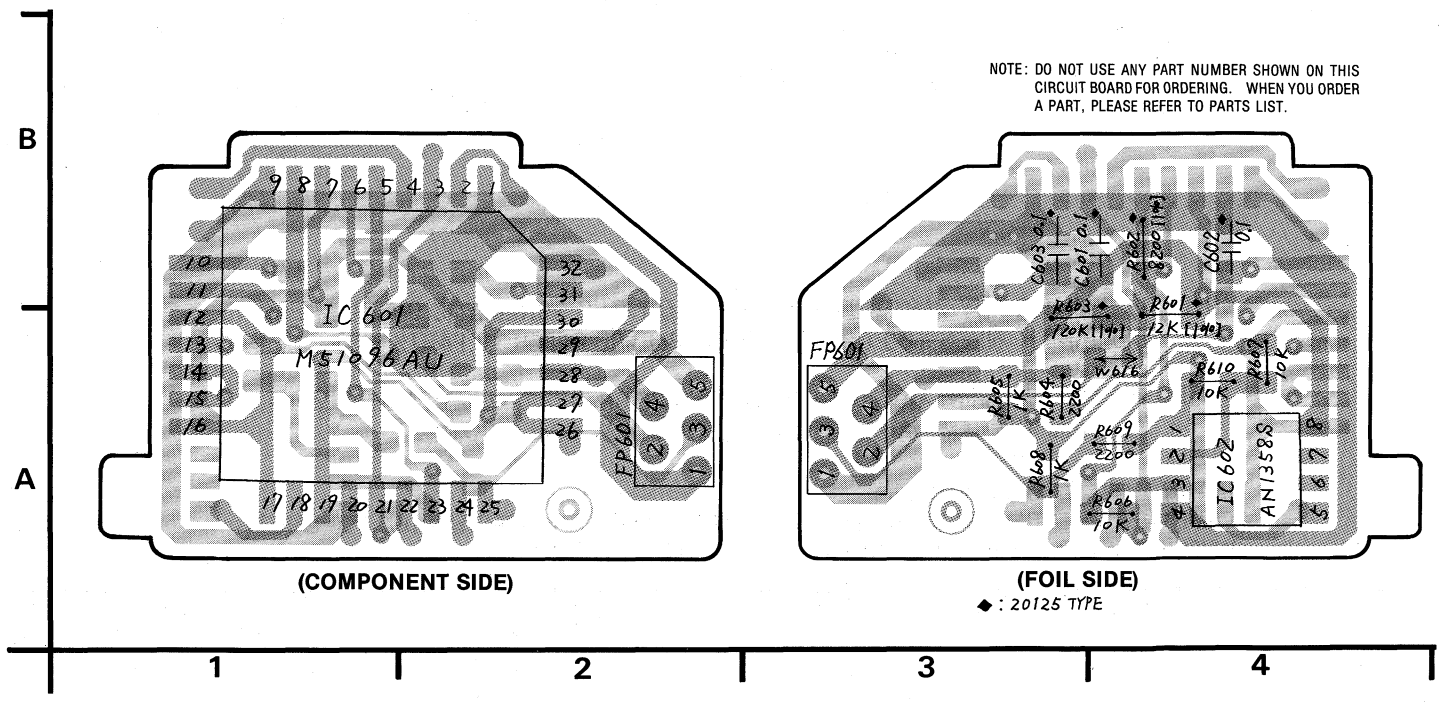

FP601 (TO PROCESS)
5 5V FP302-1
4 B / G FP302-2
3 R / G FP302-3
2 LOW L Ⓗ FP302-4
1 GND FP302-5
5V
IC 601
M51096AU
SUBTRACTIVE TEMPERATURE COMPENSATOR
TEMPERATURE COMPENSATOR
SUBTRACTIVE TEMPERATURE COMPENSATOR
R601 12K (1%)
R603 120K (1%)
R602 8200 (1%)
C601 0.1
C602 0.1
C603 0.1
R608 1K
R609 2200
R610 10K
R605 1K
R607 10K
R606 10K
R604 2200
IC 602
AN1358S
C
B
A
1
2
3
4
5
6

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-15. AWT (3) C.B.A. (VEP22083A)

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS CIRCUIT BOARD FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

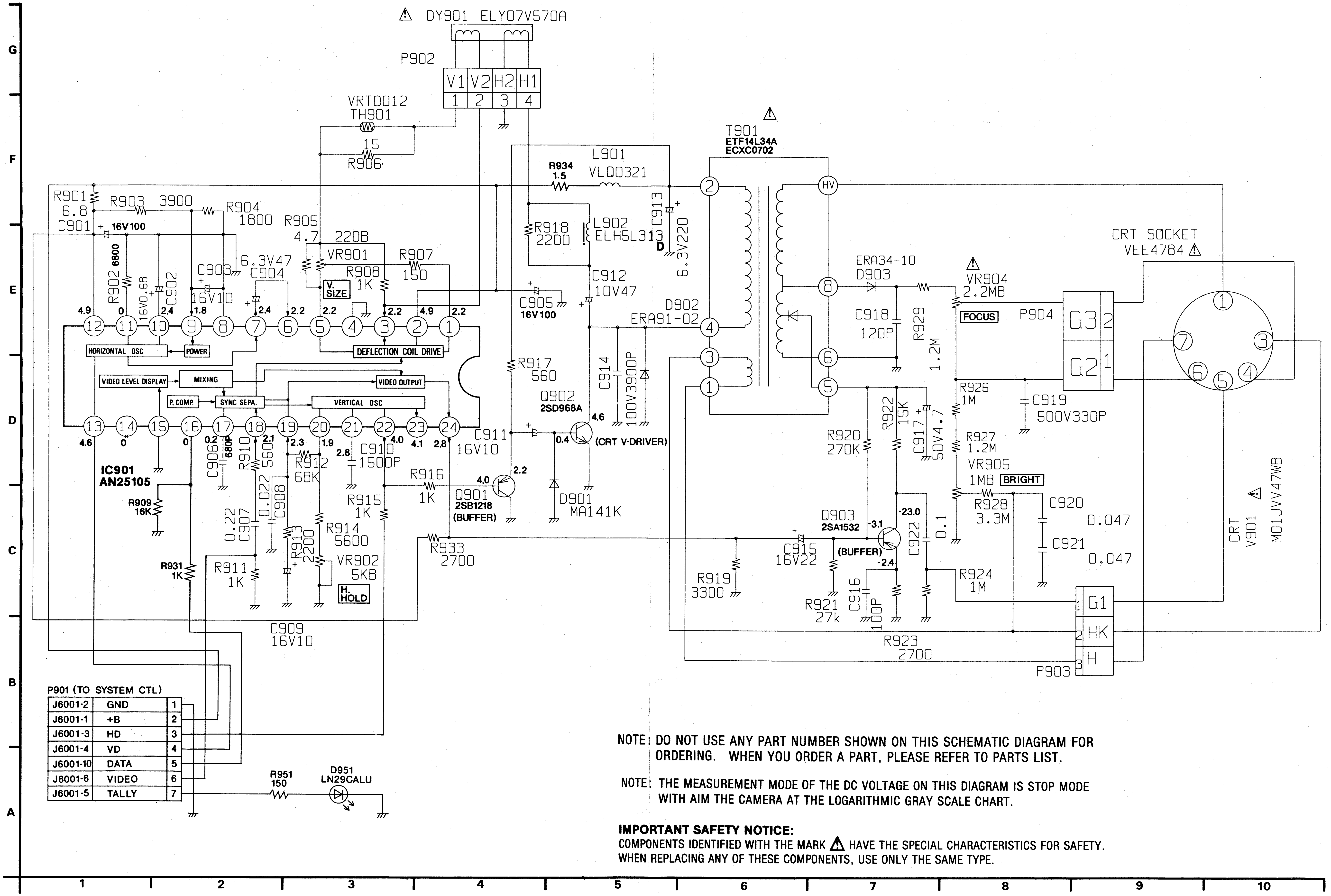

IC 601
M51096AU
FP601
C603 0.1
C601 0.1
R602 8200 (1%)
C602 0.1
R603 120K (1%)
R601 12K (1%)
W616
R605 1K
R604 2200
R610 10K
R607 10K
R609 2200
R608 1K
R606 10K
IC 602
AN1358S
B
A
1
2
3
4

(COMPONENT SIDE)

(FOIL SIDE)

◆ : 2012S TYPE

3-16. E.V.F. SCHEMATIC DIAGRAM



⚠ DY901 ELY07V570A
P902
V1 V2 H2 H1
1 2 3 4
VRT0012
TH901
15
R906
R901 6.8
R903 3900
R904 1800
R905 4.7
220B
VR901
V. SIZE
R907 150
R908 1K
C901 16V100
R902 6800
16V0.68
C902
C903
16V10
6.3V47
C904
HORIZONTAL OSC
POWER
DEFLECTION COIL DRIVE
VIDEO LEVEL DISPLAY
MIXING
VIDEO OUTPUT
P. COMP.
SYNC SEPA.
VERTICAL OSC
IC901
AN25105
R909 16K
R931 1K
R911 1K
0.22 C907
0.022 C908
C906 680P
R910 560
R912 68K
C910 1500P
R913 2200
R914 5600
R915 1K
VR902 5KB
H. HOLD
R916 1K
R933 2700
C909 16V10
C911 16V10
Q901 2SB1218 (BUFFER)
R934 1.5
L901 VLQ0321
R918 2200
L902 ELH5L313
C913 6.3V220
C912 10V47
C905 16V100
D902 ERA91-02
R917 560
Q902 2SD968A
(CRT V-DRIVER)
C914 100V3900P
D901 MA141K
⚠
T901
ETF14L34A
ECXC0702
HV
ERA34-10
D903
C918 120P
R929 1.2M
⚠
VR904 2.2MB
FOCUS
P904
G3
G2
R926 1M
C919 500V330P
R927 1.2M
VR905 1MB
BRIGHT
R928 3.3M
C920 0.047
C921 0.047
R920 270K
R922 15K
C917 50V4.7
Q903 2SA1532 (BUFFER)
C922 0.1
C915 16V22
R919 3300
R921 27k
C916 100P
R924 1M
R923 2700
G1
HK
H
P903
CRT SOCKET
VEE4784 ⚠
CRT V901 ⚠ M01JVV47WB
R951 150
D951 LN29CALU
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10

P901 (TO SYSTEM CTL)

J6001-2	GND	1
J6001-1	+B	2
J6001-3	HD	3
J6001-4	VD	4
J6001-10	DATA	5
J6001-6	VIDEO	6
J6001-5	TALLY	7

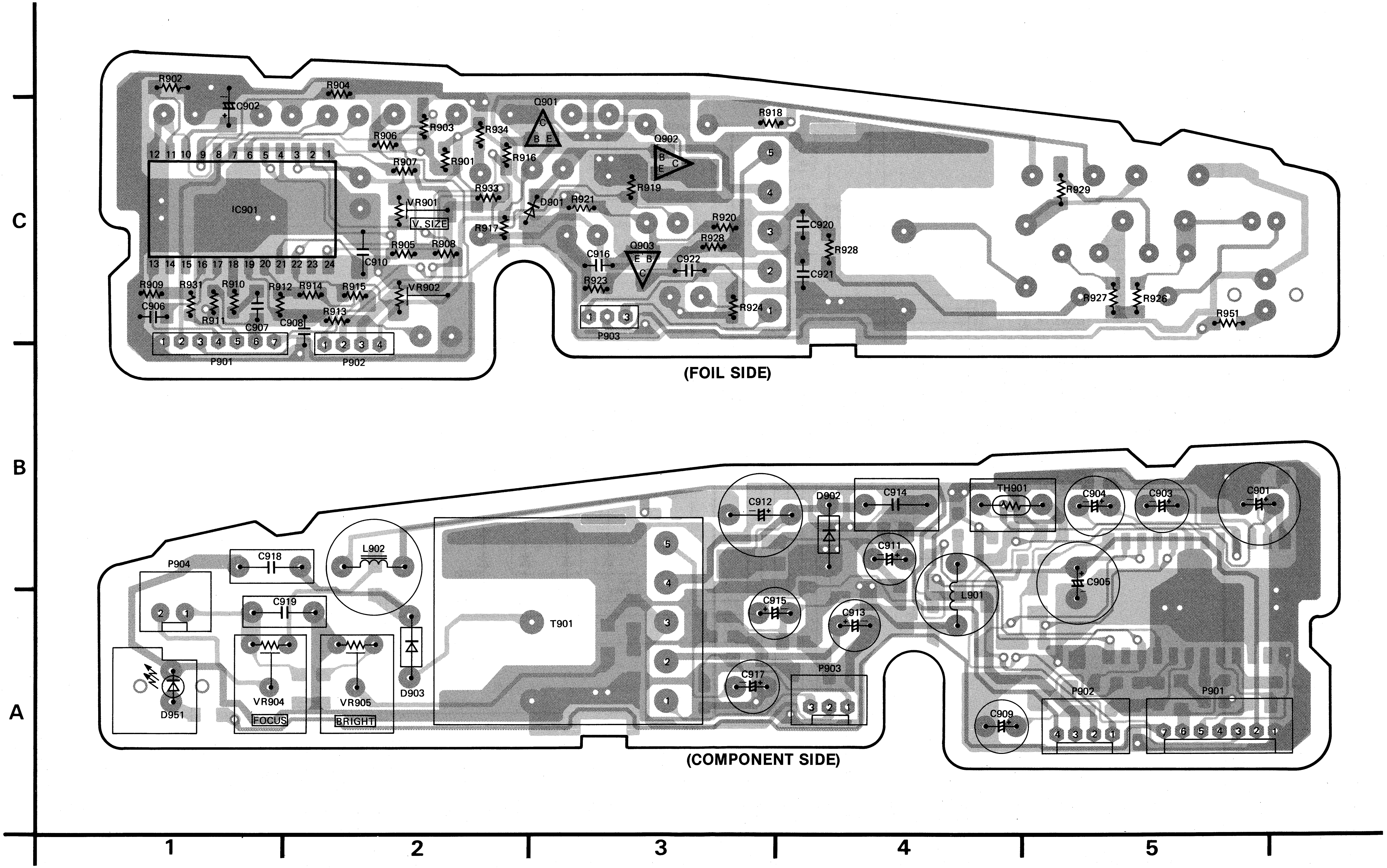
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

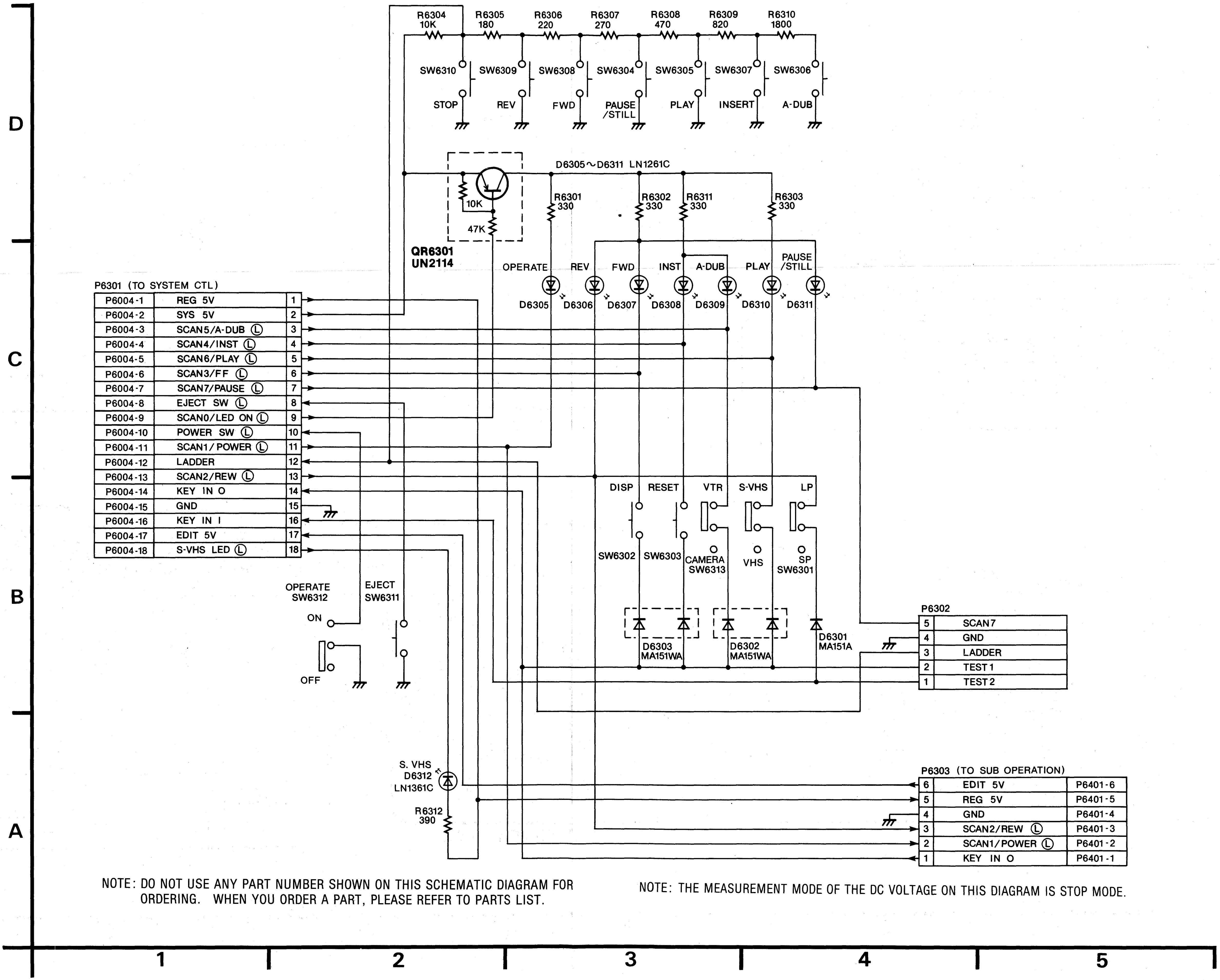
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

Back Page:
AWT (3) Section

3-17. E.V.F. C.B.A. (VEP27038C)


C
B
A
1
2
3
4
5
R902
C902
R904
Q901
R918
Q902
R906
R903
R934
R901
R916
R907
IC901
VR901
V. SIZE
R933
R919
D901
R921
R929
R917
R920
C920
R928
R905
R908
C910
C916
Q903
C922
R928
C921
R909
R931
R910
R912
R914
R915
VR902
R923
R924
R927
R926
C906
R911
C907
C908
R913
P903
R951
P901
P902
(FOIL SIDE)
C912
D902
C914
TH901
C904
C903
C901
P904
C918
L902
C911
C905
C919
T901
C915
L901
C913
VR904
VR905
D903
C917
P903
P902
P901
D951
FOCUS
BRIGHT
C909
(COMPONENT SIDE)

3-18. OPERATION SCHEMATIC DIAGRAM

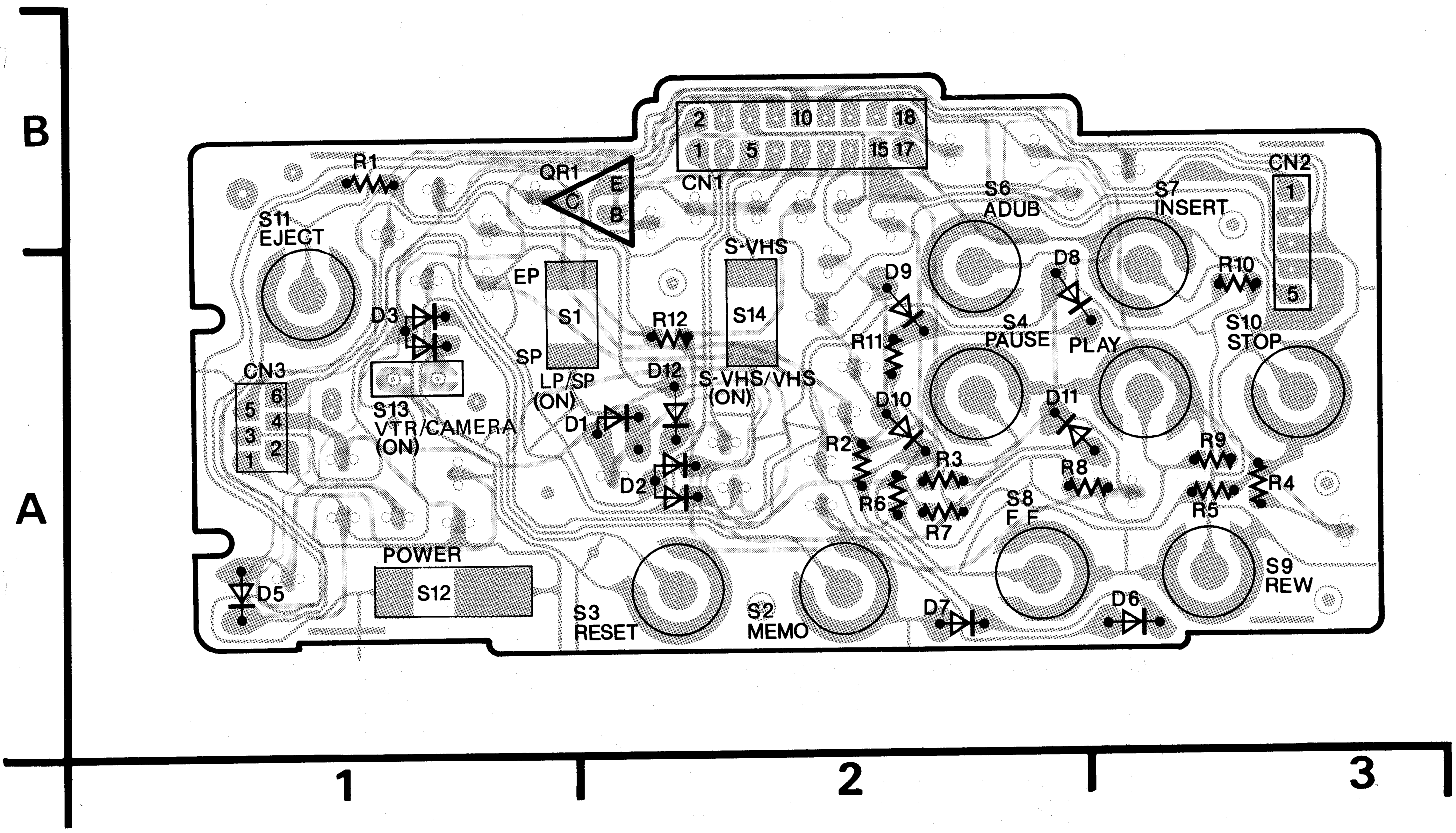

D
C
B
A
1
2
3
4
5
R6304 10K
R6305 180
R6306 220
R6307 270
R6308 470
R6309 820
R6310 1800
SW6310 STOP
SW6309 REV
SW6308 FWD
SW6304 PAUSE /STILL
SW6305 PLAY
SW6307 INSERT
SW6306 A-DUB
D6305~D6311 LN1261C
10K
47K
QR6301
UN2114
R6301 330
R6302 330
R6311 330
R6303 330
OPERATE
REV
FWD
INST
A-DUB
PLAY
PAUSE /STILL
D6305
D6306
D6307
D6308
D6309
D6310
D6311
P6301 (TO SYSTEM CTL)
P6004-1 REG 5V 1
P6004-2 SYS 5V 2
P6004-3 SCAN5/A-DUB Ⓛ 3
P6004-4 SCAN4/INST Ⓛ 4
P6004-5 SCAN6/PLAY Ⓛ 5
P6004-6 SCAN3/FF Ⓛ 6
P6004-7 SCAN7/PAUSE Ⓛ 7
P6004-8 EJECT SW Ⓛ 8
P6004-9 SCAN0/LED ON Ⓛ 9
P6004-10 POWER SW Ⓛ 10
P6004-11 SCAN1/POWER Ⓛ 11
P6004-12 LADDER 12
P6004-13 SCAN2/REW Ⓛ 13
P6004-14 KEY IN O 14
P6004-15 GND 15
P6004-16 KEY IN I 16
P6004-17 EDIT 5V 17
P6004-18 S-VHS LED Ⓛ 18
DISP
RESET
VTR
S-VHS
LP
SW6302
SW6303
CAMERA SW6313
VHS
SP SW6301
D6303 MA151WA
D6302 MA151WA
D6301 MA151A
OPERATE SW6312
ON
OFF
EJECT SW6311
P6302
5 SCAN7
4 GND
3 LADDER
2 TEST1
1 TEST2
S. VHS D6312 LN1361C
R6312 390
P6303 (TO SUB OPERATION)
6 EDIT 5V P6401-6
5 REG 5V P6401-5
4 GND P6401-4
3 SCAN2/REW Ⓛ P6401-3
2 SCAN1/POWER Ⓛ P6401-2
1 KEY IN O P6401-1

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

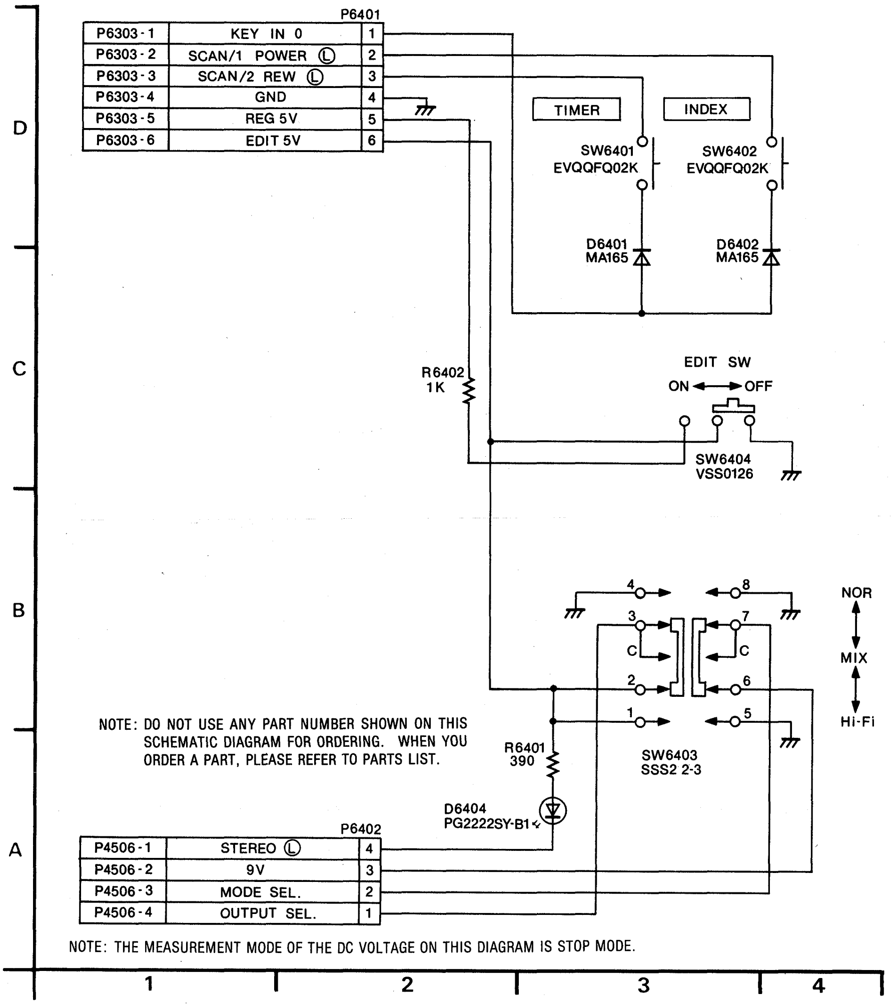
Back Page:
E.V.F. Section

3-19. OPERATION C.B.A. (VEP06515C)



B
A
1
2
3
CN1
2
10
18
1
5
15
17
R1
QR1
C
E
B
S11
EJECT
S6
ADUB
S7
INSERT
CN2
1
5
EP
S1
SP
LP/SP
(ON)
S-VHS
S14
S-VHS/VHS
(ON)
D9
D8
R10
D3
R12
D12
R11
S4
PAUSE
PLAY
S10
STOP
CN3
6
5
4
3
2
1
S13
VTR/CAMERA
(ON)
D1
D10
D11
D2
R2
R3
R6
R7
R8
R9
R5
R4
S8
F F
POWER
S12
D5
S3
RESET
S2
MEMO
D7
D6
S9
REW

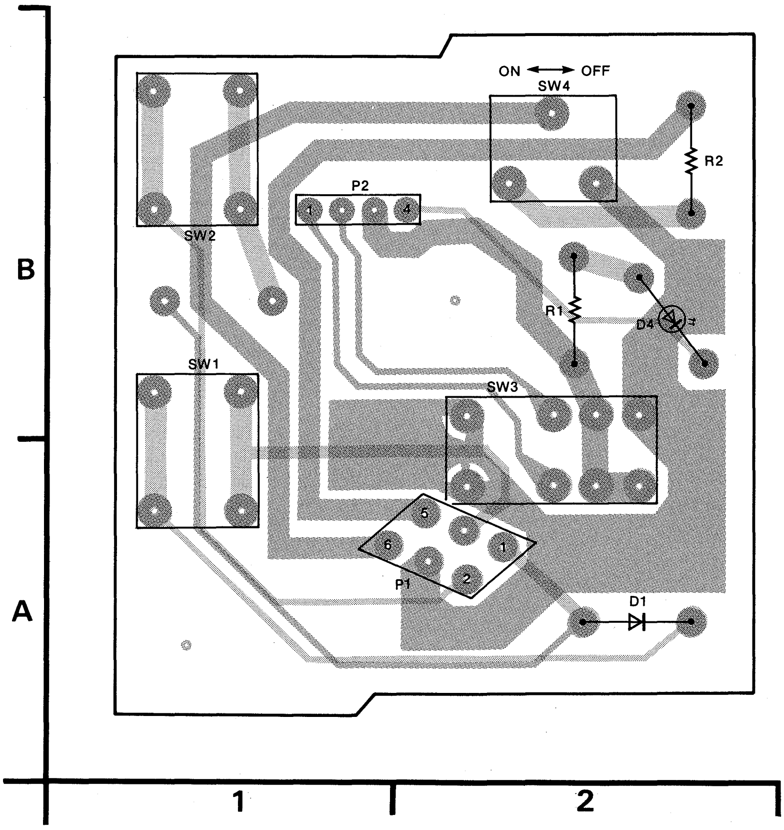
3-20. SUB OPERATION SCHEMATIC DIAGRAM


P6401
P6303-1 KEY IN 0 1
P6303-2 SCAN/1 POWER Ⓛ 2
P6303-3 SCAN/2 REW Ⓛ 3
P6303-4 GND 4
P6303-5 REG 5V 5
P6303-6 EDIT 5V 6
TIMER
INDEX
SW6401
EVQQFQ02K
SW6402
EVQQFQ02K
D6401
MA165
D6402
MA165
R6402
1K
EDIT SW
ON ←→ OFF
SW6404
VSS0126
NOR
MIX
Hi-Fi
C
C
SW6403
SSS2 2-3
R6401
390
D6404
PG2222SY-B1
P6402
P4506-1 STEREO Ⓛ 4
P4506-2 9V 3
P4506-3 MODE SEL. 2
P4506-4 OUTPUT SEL. 1
D
C
B
A
1
2
3
4

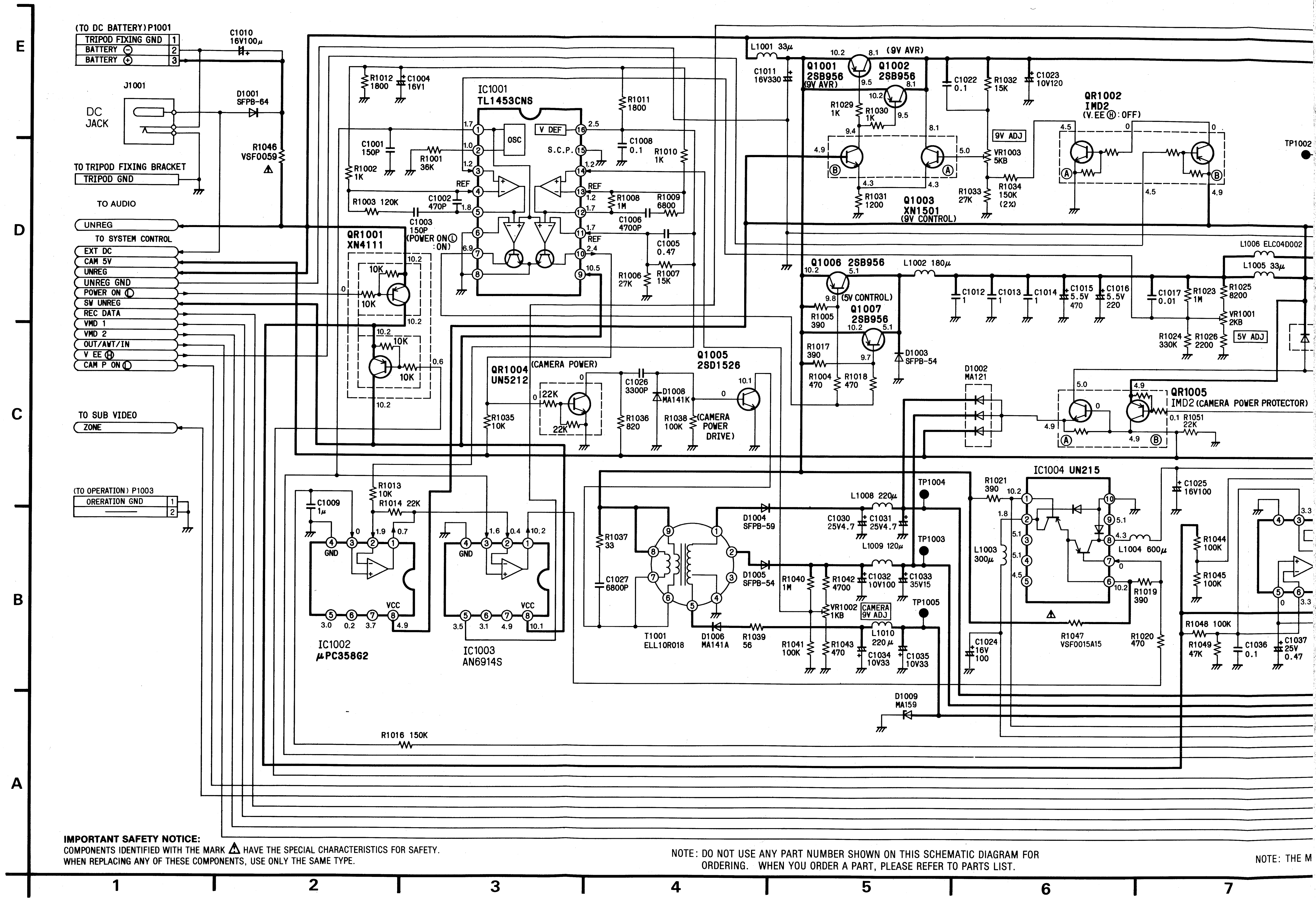
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

3-21. SUB OPERATION C.B.A. (VEK4033)


ON ←→ OFF
SW4
R2
P2
1
2
3
4
SW2
R1
D4
SW1
SW3
5
6
1
2
P1
D1
B
A
1
2

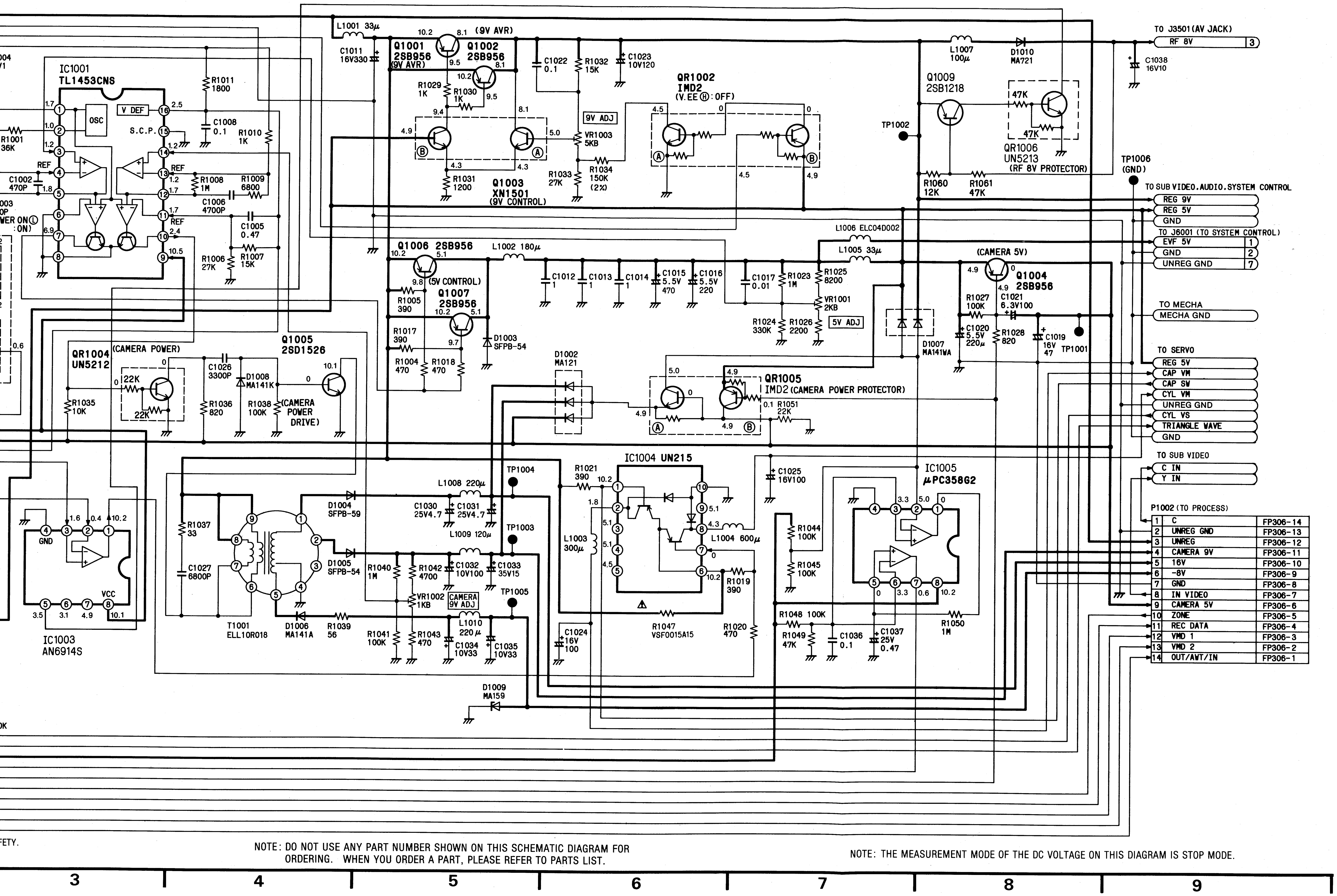
3-22. POWER SUPPLY SCHEMATIC DIAGRAM


(TO DC BATTERY) P1001
TRIPOD FIXING GND
BATTERY ⊖
BATTERY ⊕
J1001
DC JACK
TO TRIPOD FIXING BRACKET
TRIPOD GND
TO AUDIO
UNREG
TO SYSTEM CONTROL
EXT DC
CAM 5V
UNREG
UNREG GND
POWER ON Ⓛ
SW UNREG
REC DATA
VMD 1
VMD 2
OUT/AWT/IN
V EE Ⓗ
CAM P ON Ⓛ
TO SUB VIDEO
ZONE
(TO OPERATION) P1003
ORERATION GND
C1010 16V100μ
D1001 SFPB-64
R1046 VSF0059
R1012 1800
C1004 16V1
C1001 150P
R1002 1K
R1001 36K
R1003 120K
C1002 470P
C1003 150P
IC1001 TL1453CNS
OSC
V DEF
S.C.P.
REF
R1011 1800
C1008 0.1
R1010 1K
R1008 1M
R1009 6800
C1006 4700P
C1005 0.47
R1006 27K
R1007 15K
QR1001 XN4111
(POWER ON Ⓛ :ON)
10K
QR1004 UN5212
(CAMERA POWER)
22K
R1035 10K
C1026 3300P
D1008 MA141K
R1036 820
R1038 100K
(CAMERA POWER DRIVE)
Q1005 2SD1526
R1013 10K
R1014 22K
C1009 1μ
GND
VCC
IC1002 μPC358G2
IC1003 AN6914S
R1016 150K
L1001 33μ
C1011 16V330
Q1001 2SB956 (9V AVR)
Q1002 2SB956
(9V AVR)
R1029 1K
R1030 1K
C1022 0.1
R1032 15K
C1023 10V120
9V ADJ
VR1003 5KB
R1033 27K
R1034 150K (2%)
R1031 1200
Q1003 XN1501 (9V CONTROL)
QR1002 IMD2 (V.EE Ⓗ: OFF)
TP1002
Q1006 2SB956
L1002 180μ
(5V CONTROL)
Q1007 2SB956
R1005 390
R1017 390
R1004 470
R1018 470
D1003 SFPB-54
C1012 1
C1013 1
C1014 1
C1015 5.5V 470
C1016 5.5V 220
C1017 0.01
R1023 1M
R1025 8200
VR1001 2KB
5V ADJ
R1024 330K
R1026 2200
L1006 ELC04D002
L1005 33μ
D1002 MA121
QR1005 IMD2 (CAMERA POWER PROTECTOR)
R1051 22K
R1037 33
C1027 6800P
T1001 ELL10R018
D1004 SFPB-59
D1005 SFPB-54
D1006 MA141A
R1039 56
L1008 220μ
C1030 25V4.7
C1031 25V4.7
L1009 120μ
R1040 1M
R1042 4700
C1032 10V100
C1033 35V15
VR1002 1KB
CAMERA 9V ADJ
L1010 220μ
R1041 100K
R1043 470
C1034 10V33
C1035 10V33
TP1003
TP1004
TP1005
D1009 MA159
R1021 390
L1003 300μ
IC1004 UN215
L1004 600μ
R1019 390
R1047 VSF0015A15
R1020 470
C1024 16V 100
C1025 16V100
R1044 100K
R1045 100K
R1048 100K
R1049 47K
C1036 0.1
C1037 25V 0.47
E
D
C
B
A
1
2
3
4
5
6
7

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE M


IC1001
TL1453CNS
OSC
V DEF
S.C.P.
REF
R1001 36K
C1002 470P
R1011 1800
C1008 0.1
R1010 1K
R1008 1M
R1009 6800
C1006 4700P
C1005 0.47
R1006 27K
R1007 15K
L1001 33μ
C1011 16V330
Q1001 2SB956 (9V AVR)
Q1002 2SB956
(9V AVR)
R1029 1K
R1030 1K
R1031 1200
Q1003 XN1501 (9V CONTROL)
C1022 0.1
R1032 15K
C1023 10V120
9V ADJ
VR1003 5KB
R1033 27K
R1034 150K (2%)
QR1002 IMD2 (V.EE Ⓗ: OFF)
L1007 100μ
D1010 MA721
Q1009 2SB1218
47K
47K
QR1006 UN5213 (RF 8V PROTECTOR)
R1060 12K
R1061 47K
TP1002
TP1006 (GND)
TO J3501 (AV JACK)
RF 8V
C1038 16V10
TO SUB VIDEO. AUDIO. SYSTEM CONTROL
REG 9V
REG 5V
GND
TO J6001 (TO SYSTEM CONTROL)
EVF 5V
GND
UNREG GND
L1006 ELC04D002
L1005 33μ
Q1006 2SB956
(5V CONTROL)
Q1007 2SB956
R1005 390
R1017 390
R1004 470
R1018 470
D1003 SFPB-54
L1002 180μ
C1012 1
C1013 1
C1014 1
C1015 5.5V 470
C1016 5.5V 220
C1017 0.01
R1023 1M
R1025 8200
VR1001 2KB
5V ADJ
R1024 330K
R1026 2200
D1007 MA141WA
(CAMERA 5V)
Q1004 2SB956
R1027 100K
C1021 6.3V100
C1020 5.5V 220μ
R1028 820
C1019 16V 47
TP1001
TO MECHA
MECHA GND
TO SERVO
REG 5V
CAP VM
CAP SW
CYL VM
UNREG GND
CYL VS
TRIANGLE WAVE
GND
TO SUB VIDEO
C IN
Y IN
QR1004 UN5212 (CAMERA POWER)
22K
22K
R1035 10K
C1026 3300P
D1008 MA141K
R1036 820
R1038 100K (CAMERA POWER DRIVE)
Q1005 2SD1526
D1002 MA121
QR1005 IMD2 (CAMERA POWER PROTECTOR)
R1051 22K
IC1003 AN6914S
GND
VCC
R1037 33
C1027 6800P
T1001 ELL10R018
D1004 SFPB-59
D1005 SFPB-54
D1006 MA141A
R1039 56
L1008 220μ
C1030 25V4.7
C1031 25V4.7
L1009 120μ
TP1004
TP1003
TP1005
R1040 1M
R1042 4700
C1032 10V100
C1033 35V15
VR1002 1KB
CAMERA 9V ADJ
R1041 100K
R1043 470
L1010 220μ
C1034 10V33
C1035 10V33
D1009 MA159
IC1004 UN215
R1021 390
L1003 300μ
L1004 600μ
R1019 390
R1047 VSF0015A15
R1020 470
C1024 16V 100
C1025 16V100
R1044 100K
R1045 100K
IC1005 μPC35862
R1048 100K
R1049 47K
C1036 0.1
C1037 25V 0.47
R1050 1M
P1002 (TO PROCESS)
1 C FP306-14
2 UNREG GND FP306-13
3 UNREG FP306-12
4 CAMERA 9V FP306-11
5 16V FP306-10
6 -8V FP306-9
7 GND FP306-8
8 IN VIDEO FP306-7
9 CAMERA 5V FP306-6
10 ZONE FP306-5
11 REC DATA FP306-4
12 VMD 1 FP306-3
13 VMD 2 FP306-2
14 OUT/AWT/IN FP306-1
3
4
5
6
7
8
9

FETY.

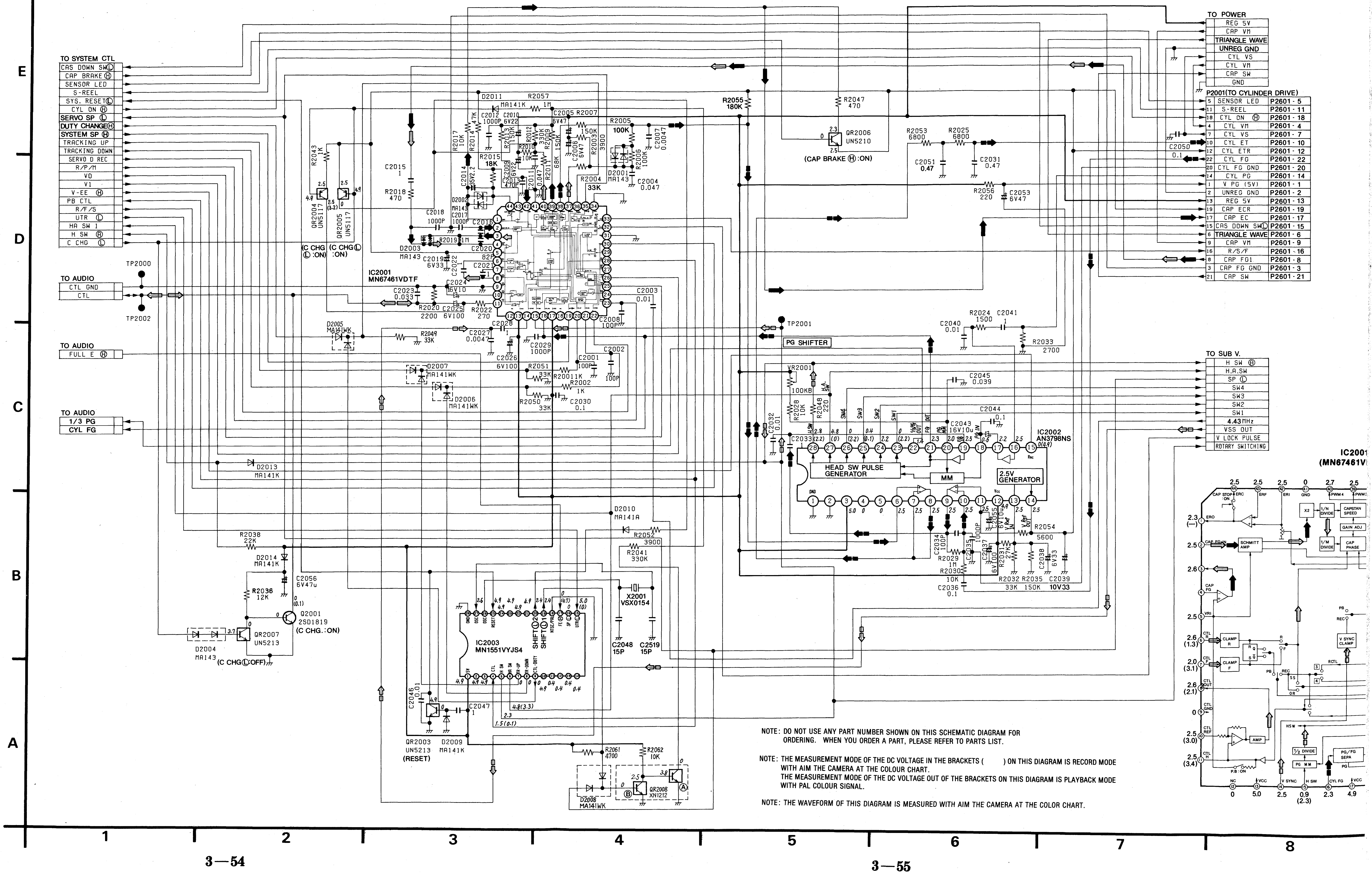
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

Next Page:
SERVO Section

3-23. SERVO SCHEMATIC DIAGRAM

CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP



E
D
C
B
A
1
2
3
4
5
6
7
8
TO SYSTEM CTL
CAS DOWN SW Ⓛ
CAP BRAKE Ⓗ
SENSOR LED
S-REEL
SYS. RESET Ⓛ
CYL ON Ⓗ
SERVO SP Ⓛ
DUTY CHANGE Ⓗ
SYSTEM SP Ⓗ
TRACKING UP
TRACKING DOWN
SERVO D REC
R/P/M
V0
V1
V-EE Ⓗ
PB CTL
R/F/S
UTR Ⓛ
HA SW 1
H SW Ⓗ
C CHG Ⓛ
TO AUDIO
CTL GND
CTL
TP2000
TP2002
TO AUDIO
FULL E Ⓗ
TO AUDIO
1/3 PG
CYL FG
TO POWER
REG 5V
CAP VM
TRIANGLE WAVE
UNREG GND
CYL VS
CYL VM
CAP SW
GND
P2001(TO CYLINDER DRIVE)
SENSOR LED P2601-5
S-REEL P2601-11
CYL ON Ⓗ P2601-18
CYL VM P2601-4
CYL VS P2601-7
CYL ET P2601-10
CYL ETR P2601-12
CYL FG P2601-22
CYL FG GND P2601-20
CYL PG P2601-14
V PG (5V) P2601-1
UNREG GND P2601-2
REG 5V P2601-13
CAP ECR P2601-19
CAP EC P2601-17
CAS DOWN SW Ⓛ P2601-15
TRIANGLE WAVE P2601-6
CAP VM P2601-9
R/S/F P2601-16
CAP FG1 P2601-8
CAP FG GND P2601-3
CAP SW P2601-21
TO SUB V.
H SW Ⓗ
H.A.SW
SP Ⓛ
SW4
SW3
SW2
SW1
4.43MHz
VSS OUT
V LOCK PULSE
ROTARY SWITCHING
IC2001
MN67461VDTF
IC2002
AN3798NS
HEAD SW PULSE GENERATOR
MM
2.5V GENERATOR
IC2003
MN1551VYJS4
X2001
VSX0154
QR2006
UN5210
(CAP BRAKE Ⓗ:ON)
QR2004 UN5117
QR2005 UN5117
(C CHG Ⓛ:ON)
(C CHG Ⓛ:ON)
QR2007
UN5213
Q2001
2SD1819
(C CHG.:ON)
D2004
MA143
(C CHG Ⓛ OFF)
QR2003
UN5213
(RESET)
D2009
MA141K
QR2008
XN1212
D2008
MA141WK
PG SHIFTER
TP2001
D2005 MA141WK
D2007 MA141WK
D2006 MA141WK
D2013 MA141K
D2014 MA141K
D2010 MA141A
D2011 MA141K
D2001 MA143
D2002 MA143
D2003 MA143
R2055 180K
R2047 470
R2053 6800
R2025 6800
C2051 0.47
C2031 0.47
R2056 220
C2053 6V47
C2050 0.1
R2024 1500
C2041 1
C2040 0.01
R2033 2700
C2045 0.039
C2044 0.1
C2043 16V10u
VR2001 100KB
R2028 10K
R2048 220
C2032 0.01
C2033
R2054 5600
C2034 100P
C2035 1000P
C2037
R2029 1M
R2030 10K
C2036 0.1
R2031 27K
R2032 33K
R2035 150K
C2038
C2039 10V33
R2057 1M
R2017 10K
R2014 47K
C2012 1000P
C2010 6V22
R2013 150K
R2012 330K
R2010 10K
R2009 150K
R2011 68K
R2003 3900
R2007 150K
C2005 6V47
C2006 6V47
R2005 100K
R2006 100K
C2007 0.0047
R2004 33K
C2004 0.047
R2015 18K
C2015 1
R2018 470
C2014 25V2.2
C2009 6V22
C2013 470P
C2011 0.047
C2016 1000P
C2017 1000P
R2019 1M
C2020 82P
C2019 6V33
C2022
C2021
C2024 16V10
C2023 0.033
R2020 2200
C2025 6V100
R2022 270
C2028
C2027 0.0047
C2026 6V100
C2029 1000P
C2003 0.01
C2008 100P
C2001 100P
C2002 100P
R2049 33K
R2051 33K
R2001 1K
R2002 1K
R2050 33K
C2030 0.1
R2043 1K
R2038 22K
R2036 12K
C2056 6V47u
R2052 3900
R2041 330K
C2048 15P
C2519 15P
C2046 0.01
C2047 1
R2061 4700
R2062 10K
IC2001 (MN67461V
CAP STOP ON
ERC
ERF
ERI
GND
PWM4
PWM3
X2
1/N DIVIDE
CAPSTAN SPEED
GAIN ADJ
ERO
CAP FG
SCHMITT AMP
1/M DIVIDE
CAP PHASE
CAP
VRI
CTL R
CLAMP R
CTL F
CLAMP F
PB
REC
V SYNC CLAMP
RCTL
SS
OR
CTL OUT
CTL GND
CTL REF
AMP
HSW
1/2 DIVIDE
PG MM
PG/FG SEPA
PG
CTL H
P.B:ON
NC
VCC
V SYNC
H SW
CYL FG

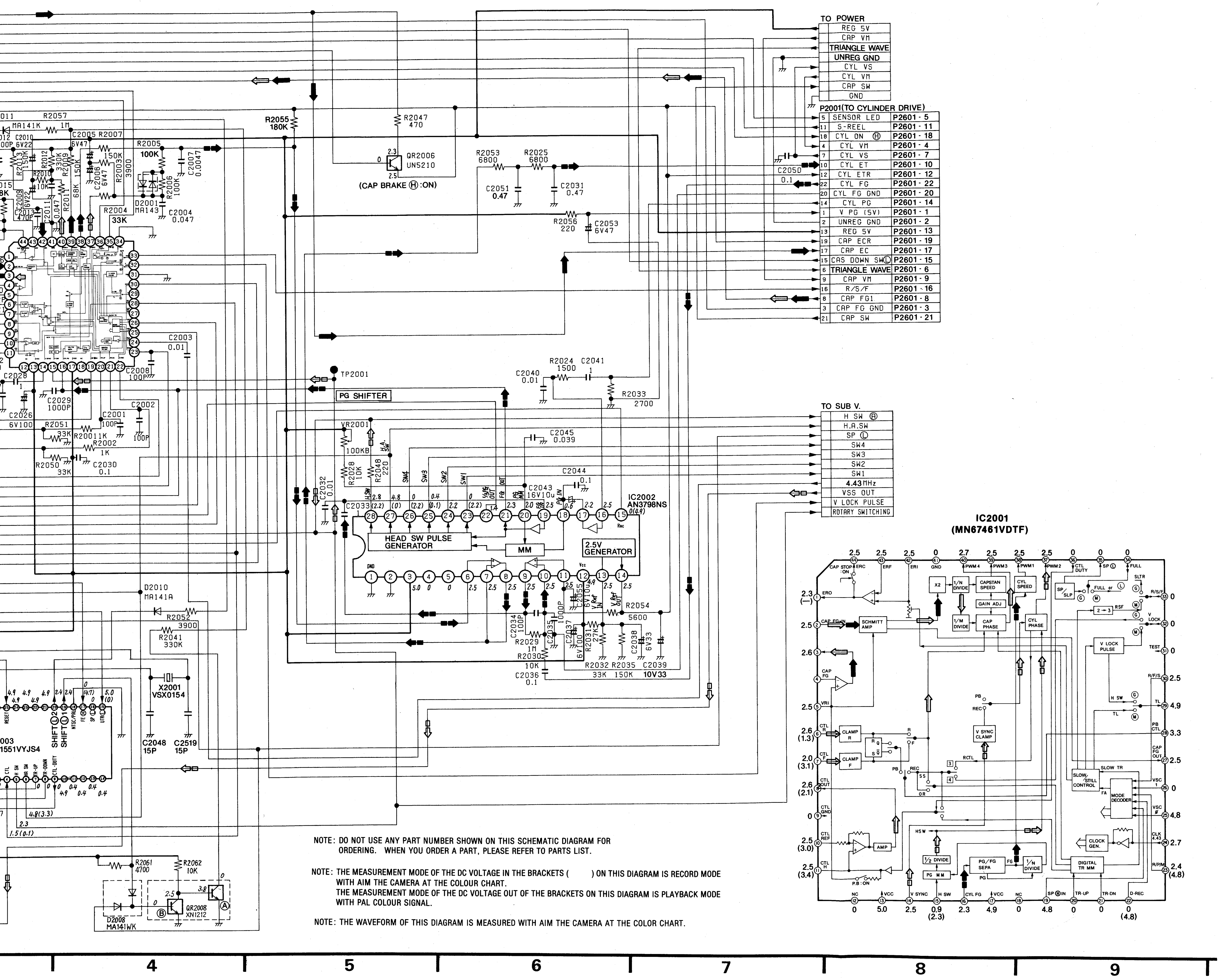
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

NOTE: THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE COLOR CHART.

■ CAPSTAN SERVO SPEED LOOP
□ CAPSTAN SERVO PHASE LOOP

◀■ CYLINDER SERVO SPEED LOOP
◁□ CYLINDER SERVO PHASE LOOP

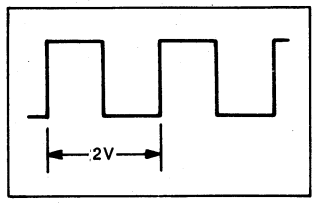

TO POWER
REG 5V
CAP VM
TRIANGLE WAVE
UNREG GND
CYL VS
CYL VM
CAP SW
GND
P2001(TO CYLINDER DRIVE)
SENSOR LED P2601·5
S-REEL P2601·11
CYL ON Ⓗ P2601·18
CYL VM P2601·4
CYL VS P2601·7
CYL ET P2601·10
CYL ETR P2601·12
CYL FG P2601·22
CYL FG GND P2601·20
CYL PG P2601·14
V PG (5V) P2601·1
UNREG GND P2601·2
REG 5V P2601·13
CAP ECR P2601·19
CAP EC P2601·17
CAS DOWN SWⓁ P2601·15
TRIANGLE WAVE P2601·6
CAP VM P2601·9
R/S/F P2601·16
CAP FG1 P2601·8
CAP FG GND P2601·3
CAP SW P2601·21
TO SUB V.
H SW Ⓡ
H.A.SW
SP Ⓛ
SW4
SW3
SW2
SW1
4.43MHz
VSS OUT
V LOCK PULSE
ROTARY SWITCHING
QR2006 UN5210
(CAP BRAKE Ⓗ:ON)
TP2001
PG SHIFTER
IC2002 AN3798NS
HEAD SW PULSE GENERATOR
MM
2.5V GENERATOR
X2001 VSX0154
QR2008 XN1212
D2008 MA141WK
D2010 MA141A
D2001 MA143
IC2001 (MN67461VDTF)
SCHMITT AMP
CAPSTAN SPEED
CYL SPEED
GAIN ADJ
CAP PHASE
CYL PHASE
V LOCK PULSE
V SYNC CLAMP
CLAMP R
CLAMP F
SLOW/STILL CONTROL
MODE DECODER
CLOCK GEN.
DIGITAL TR MM
PG/FG SEPA
½ DIVIDE
1/N DIVIDE
1/M DIVIDE
AMP
4
5
6
7
8
9

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

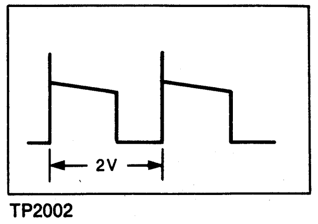
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS (   ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

NOTE: THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE COLOR CHART.

SERVO CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 2000 Series)

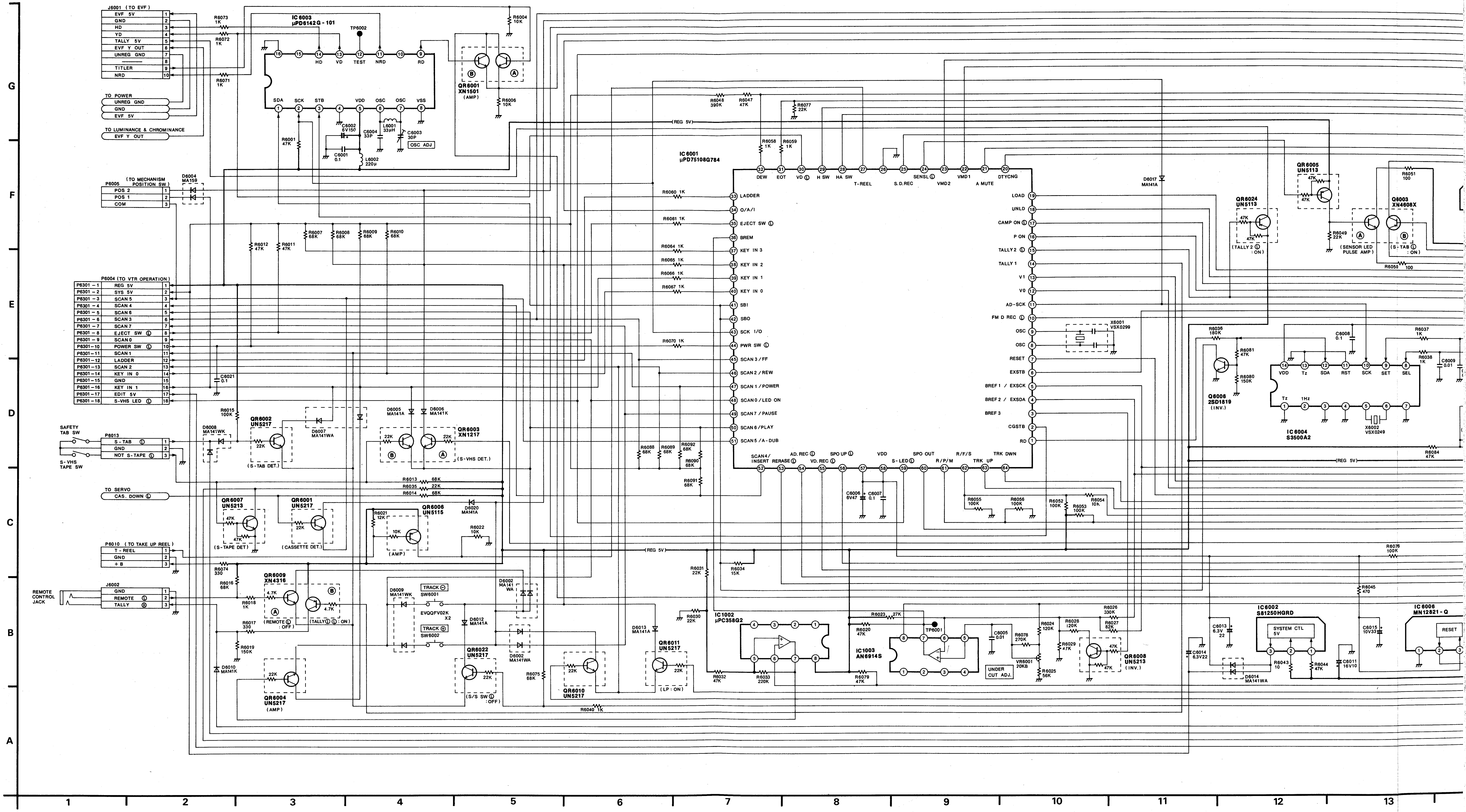


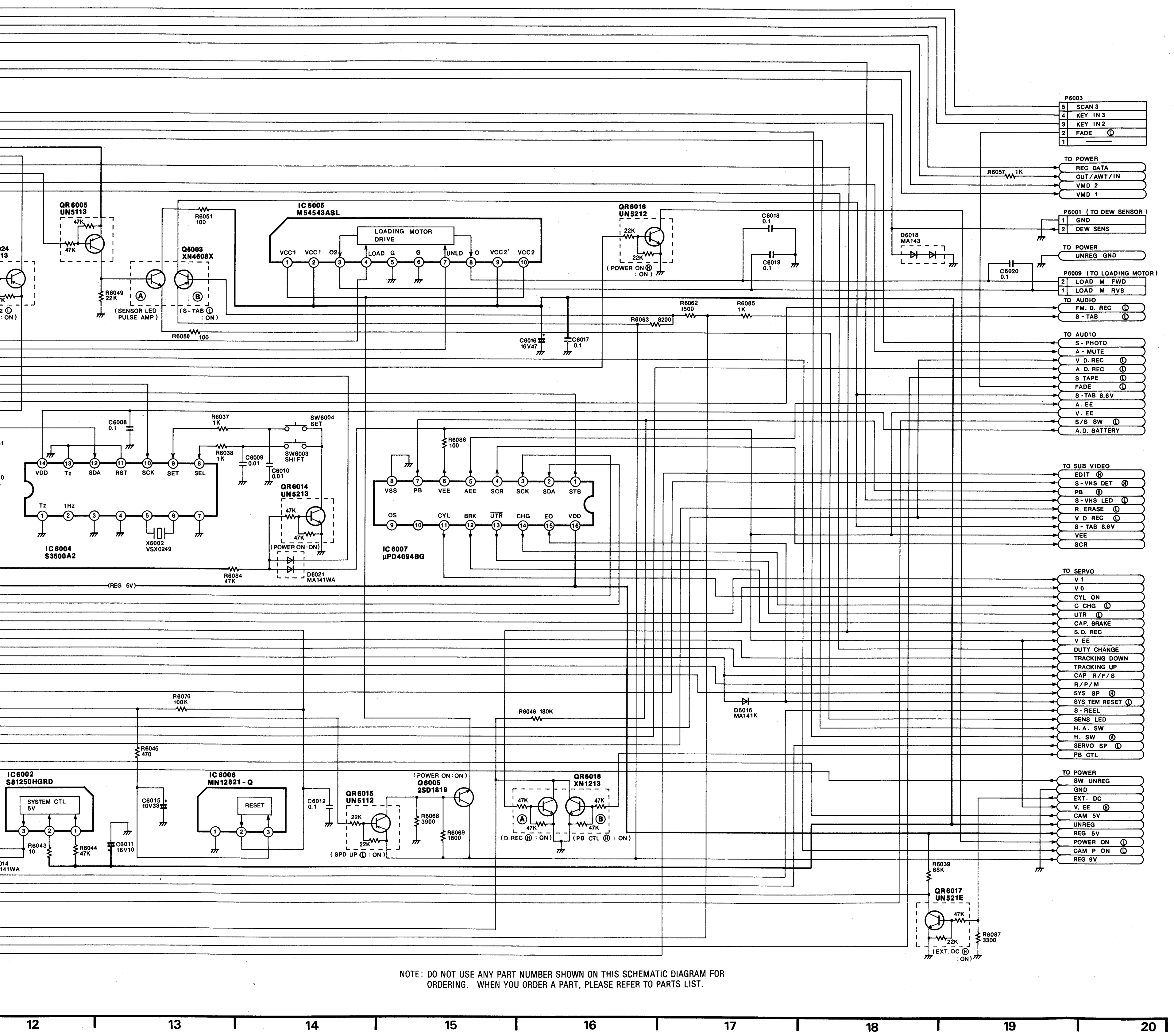
TP2001
2V/10msec. div. 4Vp-p



TP2002
2V/10msec. div. 3.2Vp-p

3-24. SYSTEM CONTROL SCHEMATIC DIAGRAM


J6001 (TO EVF)
EVF 5V
GND
HD
YD
TALLY 5V
EVF OUT
UNREG GND
TITLER
NRD
TO POWER
UNREG GND
GND
EVF 5V
TO LUMINANCE & CHROMINANCE
EVF Y OUT
IC6003
μPD6142G-101
TP6002
HD VD TEST NRD RD
SDA SCK STB VDD OSC OSC VSS
C6002 6V150
C6004 33P
L6001 33μH
C6003 30P
OSC ADJ
C6001 0.1
L6002 220μ
R6073 1K
R6072 1K
R6071 1K
R6001 47K
R6004 10K
R6006 10K
QR6001
XN1501
(AMP)
P6005 (TO MECHANISM POSITION SW)
POS 2
POS 1
COM
D6004 MA159
R6012 47K
R6011 47K
R6007 68K
R6008 68K
R6009 68K
R6010 68K
P6004 (TO VTR OPERATION)
P6301-1 REG 5V
P6301-2 SYS 5V
P6301-3 SCAN 5
P6301-4 SCAN 4
P6301-5 SCAN 6
P6301-6 SCAN 3
P6301-7 SCAN 7
P6301-8 EJECT SW Ⓛ
P6301-9 SCAN 0
P6301-10 POWER SW Ⓛ
P6301-11 SCAN 1
P6301-12 LADDER
P6301-13 SCAN 2
P6301-14 KEY IN 0
P6301-15 GND
P6301-16 KEY IN 1
P6301-17 EDIT 5V
P6301-18 S-VHS LED Ⓛ
C6021 0.1
SAFETY TAB SW
S-VHS TAPE SW
P6013
S-TAB Ⓛ
GND
NOT S-TAPE Ⓛ
R6015 100K
D6008 MA141WK
QR6002 UN5217
(S-TAB DET.)
D6007 MA141WA
D6005 MA141A
D6006 MA141K
QR6003 XN1217
(S-VHS DET.)
R6013 68K
R6035 22K
R6014 68K
TO SERVO
CAS. DOWN Ⓛ
QR6007 UN5213
(S-TAPE DET)
QR6001 UN5217
(CASSETTE DET.)
R6021 12K
QR6006 UN5115
(AMP)
D6020 MA141A
R6022 10K
P6010 (TO TAKE UP REEL)
T-REEL
GND
+B
R6074 330
R6016 68K
QR6009 XN4316
(REMOTE Ⓛ : OFF)
(TALLY Ⓛ Ⓛ : ON)
R6018 1K
R6017 330
R6019 150K
REMOTE CONTROL JACK
J6002
GND
REMOTE Ⓛ
TALLY Ⓛ
D6010 MA141K
QR6004 UN5217 (AMP)
D6009 MA141WK
TRACK ⊖
SW6001
EVQQFV02K X2
TRACK ⊕
SW6002
D6012 MA141A
D6002 MA141 WA
D6002 MA141WA
QR6022 UN5217
(S/S SW Ⓛ : OFF)
R6075 68K
QR6010 UN5217
R6040 1K
D6013 MA141A
QR6011 UN5217
(LP : ON)
R6030 22K
R6031 22K
R6034 15K
R6032 47K
R6033 220K
IC1002 μPC358G2
(REG 5V)
R6048 390K
R6047 47K
R6077 22K
R6058 1K
R6059 1K
IC6001
μPD75108G784
DEW EOT VD Ⓛ H SW HA SW T-REEL S.D.REC SENSL Ⓛ VMD2 VMD1 A MUTE DTYCNG
R6060 1K
R6061 1K
R6064 1K
R6065 1K
R6066 1K
R6067 1K
R6070 1K
LADDER
O/A/I
EJECT SW Ⓛ
BREM
KEY IN 3
KEY IN 2
KEY IN 1
KEY IN 0
SBI
SBO
SCK I/O
PWR SW Ⓛ
SCAN 3 / FF
SCAN 2 / REW
SCAN 1 / POWER
SCAN 0 / LED ON
SCAN 7 / PAUSE
SCAN 6 / PLAY
SCAN 5 / A-DUB
LOAD
UNLD
CAMP ON Ⓛ
P ON
TALLY 2 Ⓛ
TALLY 1
V1
V0
AD-SCK
FM D REC Ⓛ
OSC
OSC
RESET
EXSTB
BREF 1 / EXSCK
BREF 2 / EXSDA
BREF 3
CGSTB
RD
SCAN4/ INSERT RERASE Ⓛ
AD. REC Ⓛ
VD. REC Ⓛ
SPO UP Ⓛ
VDD
S-LED Ⓛ
SPO OUT
R/P/M
R/F/S
TRK UP
TRK DWN
R6088 68K
R6089 68K
R6092 68K
R6090 68K
R6091 68K
C6006 6V47
C6007 0.1
R6055 100K
R6056 100K
R6052 100K
R6053 100K
R6054 10K
X6001 VSX0299
D6017 MA141A
IC1003 AN6914S
TP6001
R6023 27K
R6020 47K
R6079 47K
C6005 0.01
R6078 270K
VR6001 20KB
UNDER CUT ADJ.
R6024 120K
R6025 56K
R6028 120K
R6029 47K
R6026 330K
R6027 82K
QR6008 UN5213 (INV.)
QR6024 UN5113
(TALLY 2 Ⓛ : ON)
QR6005 UN5113
Q6003 XN4608X
(SENSOR LED PULSE AMP)
(S-TAB Ⓛ : ON)
R6049 22K
R6051 100
R6050 100
R6036 180K
R6081 47K
R6080 150K
Q6006 2SD1819 (INV.)
C6008 0.1
R6037 1K
R6038 1K
C6009 0.01
VDD Tz SDA RST SCK SET SEL
Tz 1Hz
X6002 VSX0249
IC6004 S3500A2
R6084 47K
R6076 100K
R6045 470
C6013 6.3V 22
C6014 6.3V22
IC6002 S81250HGRD
SYSTEM CTL 5V
R6043 10
R6044 47K
C6011 16V10
C6015 10V33
D6014 MA141WA
IC6006 MN12821-Q
RESET
A B C D E F G
1 2 3 4 5 6 7 8 9 10 11 12 13



P6003
5 SCAN 3
4 KEY IN 3
3 KEY IN 2
2 FADE Ⓛ
TO POWER
REC DATA
OUT/AWT/IN
VMD 2
VMD 1
R6057 1K
P6001 (TO DEW SENSOR)
1 GND
2 DEW SENS
TO POWER
UNREG GND
C6020 0.1
P6009 (TO LOADING MOTOR)
2 LOAD M FWD
1 LOAD M RVS
TO AUDIO
FM. D. REC Ⓛ
S-TAB Ⓛ
TO AUDIO
S-PHOTO
A-MUTE
V D. REC Ⓛ
A D. REC Ⓛ
S TAPE Ⓛ
FADE Ⓛ
S-TAB 8.6V
A. EE
V. EE
S/S SW Ⓛ
A.D. BATTERY
TO SUB VIDEO
EDIT Ⓗ
S-VHS DET Ⓗ
PB Ⓗ
S-VHS LED Ⓛ
R. ERASE Ⓛ
V D REC Ⓛ
S-TAB 8.6V
VEE
SCR
TO SERVO
V 1
V 0
CYL ON
C CHG Ⓛ
UTR Ⓛ
CAP. BRAKE
S. D. REC
V EE
DUTY CHANGE
TRACKING DOWN
TRACKING UP
CAP R/F/S
R/P/M
SYS SP Ⓗ
SYS TEM RESET Ⓛ
S-REEL
SENS LED
H. A. SW
H. SW Ⓐ
SERVO SP Ⓛ
PB CTL
TO POWER
SW UNREG
GND
EXT. DC
V. EE Ⓗ
CAM 5V
UNREG
REG 5V
POWER ON Ⓛ
CAM P ON Ⓛ
REG 9V
QR6005 UN5113
Q6003 XN4608X
(SENSOR LED PULSE AMP)
(S-TAB Ⓛ : ON)
R6051 100
R6049 22K
R6050 100
IC6005 M54543ASL
LOADING MOTOR DRIVE
VCC1 VCC1 O2 LOAD G G UNLD O VCC2' VCC2
QR6016 UN5212
(POWER ON Ⓗ : ON)
C6018 0.1
C6019 0.1
D6018 MA143
R6062 1500
R6085 1K
R6063 8200
C6016 16V47
C6017 0.1
C6008 0.1
R6037 1K
R6038 1K
C6009 0.01
C6010 0.01
SW6004 SET
SW6003 SHIFT
QR6014 UN5213
(POWER ON : ON)
D6021 MA141WA
R6084 47K
IC6004 S3500A2
VDD Tz SDA RST SCK SET SEL
Tz 1Hz
X6002 VSX0249
R6086 100
IC6007 μPD4094BG
VSS PB VEE AEE SCR SCK SDA STB
OS CYL BRK UTR CHG EO VDD
(REG 5V)
R6076 100K
D6016 MA141K
R6046 180K
R6045 470
IC6002 S81250HGRD
SYSTEM CTL 5V
R6043 10
R6044 47K
C6011 16V10
C6015 10V33
IC6006 MN12821-Q
RESET
C6012 0.1
QR6015 UN5112
(SPD UP Ⓛ : ON)
(POWER ON : ON)
Q6005 2SD1819
R6068 3900
R6069 1800
QR6018 XN1213
(D.REC Ⓗ : ON)
(PB CTL Ⓗ : ON)
R6039 68K
QR6017 UN521E
R6087 3300
(EXT. DC Ⓗ : ON)
12
13
14
15
16
17
18
19
20

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

SYSTEM CONTROL Section ICs VOLTAGE CHART (SP MODE)

REF. NO.	IC1002										IC1003									
MODE	1	2	3	4	5	6	7	8			1	2	3	4	5	6	7	8		
STOP	0.4	1.8	0	0	1.9	4.1	0	4.9			10.2	0.4	1.6	0	3.5	3.1	4.9	10.1		
PLAY	1.5	2.1	2.1	0	—	4.5	—	4.9			7.2	1.5	1.6	0	3.5	3.1	4.9	10.1		
F.F	0.4	1.8	0	0	—	—	—	4.9			10.1	0.4	1.6	0	3.5	3.1	4.9	10.1		
REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	4.8	0.1	0.1	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0
PLAY	—	0	0	0	0	0	4.8	0	0	4.8	0	0	0	0	4.9	0	0	0	0	0
F.F	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	4.9	0.1	0.1	0.1	0.1	0.1	0
REF. NO.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	4.9	0	0	4.9	0	0	4.9	0	4.2	0.1	0	0	4.8	2.0	4.8	4.9	0.8	0.8	0	4.8
PLAY	0	0	0	4.9	0	0	—	—	—	0	0	0	4.8	0	4.8	4.9	0.8	0.8	0.8	0.8
F.F	4.9	0	0	4.9	0	0	—	4.8	4.3	0.1	0	0	4.8	2.0	4.7	4.8	0.8	0.7	—	4.7
REF. NO.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	—	—	4.8	4.8	4.8	4.8	0.2	0.2	3.5	4.8	—	4.6	0.1	0	0	0	0	0	0	0
PLAY	—	—	4.8	4.8	4.7	—	0	0.3	3.5	—	3.6	3.5	0.1	0.1	0.1	0.1	0.1	0.1	0	0
F.F	—	—	4.8	4.8	—	—	0.4	0.3	1.5	4.8	—	4.7	0	0	0	0	0	0	0	0
REF. NO.	IC6001																			
MODE	61	62	63	64																
STOP	0	0	0	0																
PLAY	0	0	0	0																
F.F	0	0	0	0																
REF. NO.	IC6002																			
MODE	1	2	3																	
STOP	0	10.1	5.5																	
PLAY	0.4	10.0	5.5																	
F.F	0.4	10.0	5.5																	
REF. NO.	IC6003																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
STOP	—	4.8	0	0	4.8	2.3	2.3	0	0	0	0	0	0	0	0	0				
PLAY	—	4.7	0.1	0	4.6	2.6	2.6	0	0	0	0	0	0	0	0	0				
F.F	—	4.8	0.1	0	4.6	2.6	2.6	0	0	0	0	0	0	0	0	0				
REF. NO.	IC6004																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0	0	0	0	0	0	0	0	0	4.8	0	0.7	0	0						
PLAY	0	0	0	0	0	0	0	0	0	4.8	0	—	0	0						
F.F	0	0	0	0	0	0	0	0	0	4.9	0	—	0	0						
REF. NO.	IC6005																			
MODE	1	2	3	4	5	6	7	8	9	10										
STOP	4.8	10.2	—	0	0	0	0	0.5	10.2	4.8										
PLAY	5.0	10.2	0	0	0	0	0	0	10.2	5.1										
F.F	5.1	10.2	0	0	0	0	0	0	10.2	5.1										
REF. NO.	IC6006																			
MODE	1	2	3																	
STOP	0	4.8	4.9																	
PLAY	0	4.8	4.9																	
F.F	0	4.8	4.9																	
REF. NO.	IC6007																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
STOP	0	4.9	4.8	0	4.8	4.6	0	0	0	4.5	0	0	4.9	0	4.8	4.9				
PLAY	0	4.8	4.8	0	0	0	4.8	0	—	4.8	4.9	0	4.9	4.9	4.8	4.9				
F.F	0	4.8	4.8	0	0	0	4.8	0	0	—	0	0	4.9	4.9	4.8	4.9				

SYSTEM CONTROL TRANSISTORs VOLTAGE CHART

REF. NO.	Q3 Ⓐ			Q3 Ⓑ			Q5			Q6								
MODE	E	C	B	E	C	B	E	C	B	E	C	B						
STOP	0	10.2	0	8.1	0.3	8.2	4.8	8.1	5.5	0	2.2	0.2						
PLAY	0	10.2	0	8.5	8.5	7.8	5.1	8.5	5.7	0	—	0.2						
F.F	0	10.2	0	9.0	9.4	8.6	4.8	8.1	5.5	0	—	0.2						
REF. NO.	QR1			QR2			QR3 Ⓐ			QR3 Ⓑ			QR4			QR5		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	3.7	3.6	4.3	0.5	—	1.6	4.8	—	0	4.8	2.3	2.3	0.2	0.1	3.7	4.9	0	4.9
PLAY	3.6	—	0	—	—	0.4	—	—	4.6	0.4	—	1.5	—	—	3.7	4.9	0	4.9
F.F	4.5	—	0	—	—	0.3	4.8	—	0	4.8	—	2.3	0.3	—	—	4.9	0	4.9
REF. NO.	QR6			QR7			QR8			QR9 Ⓐ			QR9 Ⓑ			QR10		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	4.9	0	4.9	0	0	2.3	0	0	4.8	—	0	1.2	4.9	0	4.9	4.8	—	0
PLAY	4.9	4.9	—	0	0	1.5	0	0	4.9	—	—	—	4.9	—	4.9	4.8	—	0
F.F	4.9	—	—	0	0	2.3	0	0	4.9	0.4	—	—	4.9	0	4.9	4.8	—	0
REF. NO.	QR11			QR14			Q15			Q16			QR17			QR18 Ⓐ		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	4.8	—	0	0	0	2.6	8.1	5.5	8.1	0	0	4.8	0	0	10.6	0	0	0
PLAY	4.8	—	0	−0.3	0	0.4	8.5	5.7	8.5	0	0	4.9	0	0	10.6	0	—	0
F.F	4.8	4.1	4.4	0	0	2.6	8.1	5.5	8.1	0	0	4.9	0	0	10.6	0	0	0
REF. NO.	QR18 Ⓑ			QR22			QR24											
MODE	E	C	B	E	C	B	E	C	B									
STOP	0	0	0	—	—	1.6	4.9	0	4.9									
PLAY	0	—	—	—	—	1.7	4.9	0	4.9									
F.F	0	0	0	—	—	—	4.9	0	4.9									

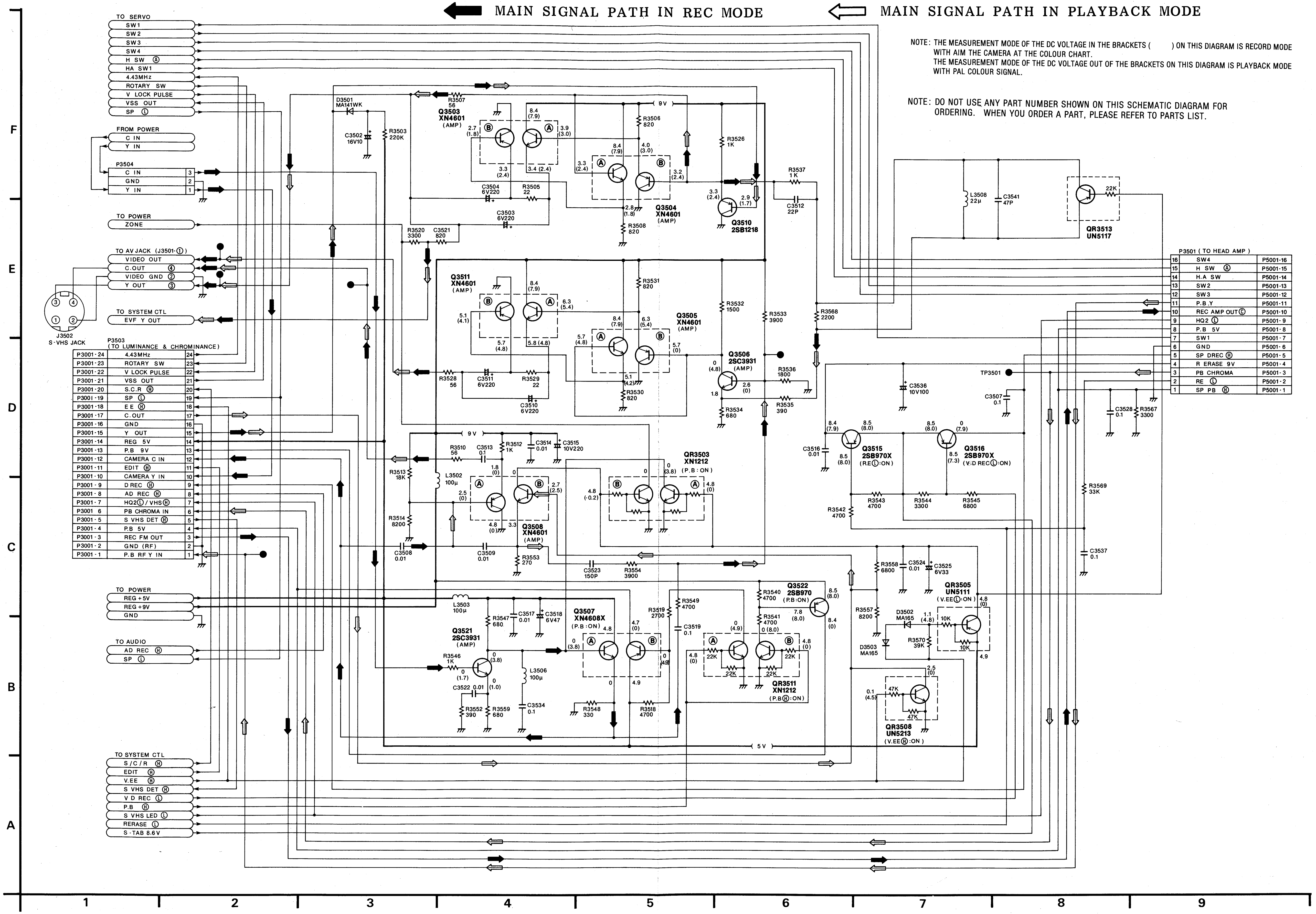
3-25. SUB VIDEO SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN REC MODE

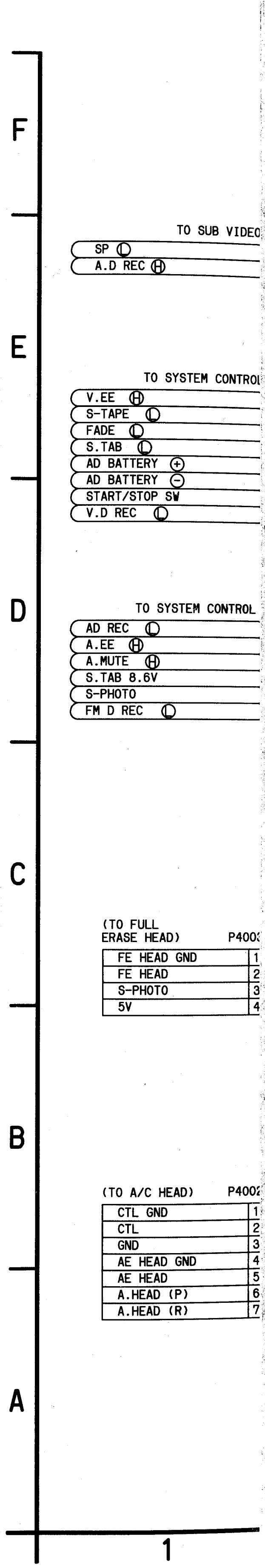
MAIN SIGNAL PATH IN PLAYBACK MODE

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.


F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
TO SERVO
SW1
SW2
SW3
SW4
H SW Ⓐ
HA SW1
4.43MHz
ROTARY SW
V LOCK PULSE
VSS OUT
SP Ⓛ
FROM POWER
C IN
Y IN
P3504
C IN
GND
Y IN
TO POWER
ZONE
TO AV JACK (J3501-Ⓓ)
VIDEO OUT
C.OUT
VIDEO GND
Y OUT
TO SYSTEM CTL
EVF Y OUT
J3502
S-VHS JACK
P3503
(TO LUMINANCE & CHROMINANCE)
P3001-24 4.43MHz
P3001-23 ROTARY SW
P3001-22 V LOCK PULSE
P3001-21 VSS OUT
P3001-20 S.C.R Ⓗ
P3001-19 SP Ⓛ
P3001-18 EE Ⓗ
P3001-17 C.OUT
P3001-16 GND
P3001-15 Y OUT
P3001-14 REG 5V
P3001-13 P.B 9V
P3001-12 CAMERA C IN
P3001-11 EDIT Ⓗ
P3001-10 CAMERA Y IN
P3001-9 D REC Ⓗ
P3001-8 AD REC Ⓗ
P3001-7 HQ2Ⓛ / VHSⒽ
P3001-6 PB CHROMA IN
P3001-5 S VHS DET Ⓗ
P3001-4 P.B 5V
P3001-3 REC FM OUT
P3001-2 GND (RF)
P3001-1 P.B RF Y IN
TO POWER
REG +5V
REG +9V
GND
TO AUDIO
AD REC Ⓗ
SP Ⓛ
TO SYSTEM CTL
S/C/R Ⓗ
EDIT Ⓗ
V.EE Ⓗ
S VHS DET Ⓗ
V D REC Ⓛ
P.B Ⓗ
S VHS LED Ⓛ
RERASE Ⓛ
S-TAB 8.6V
D3501 MA141WK
C3502 16V10
R3503 220K
R3507 56
Q3503 XN4601 (AMP)
R3506 820
Q3504 XN4601 (AMP)
R3508 820
C3504 6V220
R3505 22
C3503 6V220
R3526 1K
Q3510 2SB1218
R3537 1K
C3512 22P
L3508 22μ
C3541 47P
QR3513 UN5117
22K
R3520 3300
C3521 820
Q3511 XN4601 (AMP)
R3531 820
Q3505 XN4601 (AMP)
R3532 1500
R3533 3900
R3568 2200
Q3506 2SC3931 (AMP)
R3536 1800
R3534 680
R3535 390
R3528 56
C3511 6V220
R3529 22
C3510 6V220
R3530 820
C3536 10V100
TP3501
C3507 0.1
C3528 0.1
R3567 3300
P3501 (TO HEAD AMP)
16 SW4 P5001-16
15 H SW Ⓐ P5001-15
14 H.A SW P5001-14
13 SW2 P5001-13
12 SW3 P5001-12
11 P.B.Y P5001-11
10 REC AMP OUTⒸ P5001-10
9 HQ2 Ⓛ P5001-9
8 P.B 5V P5001-8
7 SW1 P5001-7
6 GND P5001-6
5 SP DREC Ⓗ P5001-5
4 R ERASE 9V P5001-4
3 PB CHROMA P5001-3
2 RE Ⓛ P5001-2
1 SP PB Ⓗ P5001-1
9V
R3510 56
C3513 0.1
R3512 1K
C3514 0.01
C3515 10V220
R3513 18K
L3502 100μ
R3514 8200
Q3508 XN4601 (AMP)
QR3503 XN1212 (P.B:ON)
C3516 0.01
Q3515 2SB970X (REⓁ:ON)
Q3516 2SB970X (V.D RECⓁ:ON)
R3569 33K
R3542 4700
R3543 4700
R3544 3300
R3545 6800
C3508 0.01
C3509 0.01
R3553 270
C3523 150P
R3554 3900
C3537 0.1
L3503 100μ
R3547 680
C3517 0.01
C3518 6V47
Q3507 XN4608X (P.B:ON)
R3519 2700
R3549 4700
C3519 0.1
R3540 4700
R3541 4700
Q3522 2SB970 (P.B:ON)
R3558 6800
C3524 0.01
C3525 6V33
QR3505 UN5111 (V.EEⓁ:ON)
R3557 8200
D3502 MA165
D3503 MA165
R3570 39K
10K
Q3521 2SC3931 (AMP)
R3546 1K
L3506 100μ
C3522 0.01
C3534 0.1
R3552 390
R3559 680
R3548 330
R3518 4700
QR3511 XN1212 (P.BⒽ:ON)
22K
QR3508 UN5213 (V.EEⒽ:ON)
47K
5V

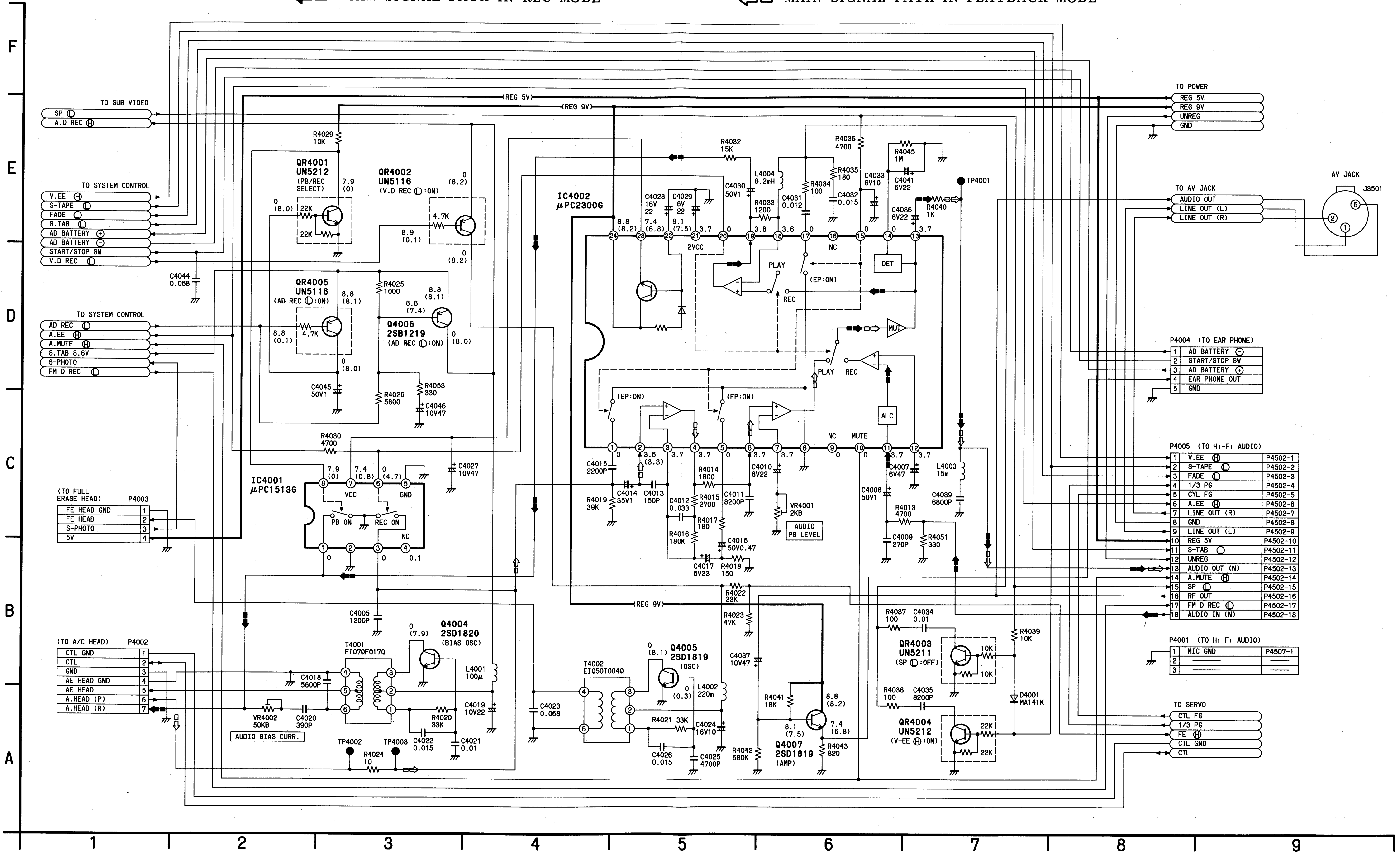
3-26. AUDIO S


F
E
D
C
B
A
1
TO SUB VIDEO
SP Ⓛ
A.D REC Ⓗ
TO SYSTEM CONTROL
V.EE Ⓗ
S-TAPE Ⓛ
FADE Ⓛ
S.TAB Ⓛ
AD BATTERY ⊕
AD BATTERY ⊖
START/STOP SW
V.D REC Ⓛ
TO SYSTEM CONTROL
AD REC Ⓛ
A.EE Ⓗ
A.MUTE Ⓗ
S.TAB 8.6V
S-PHOTO
FM D REC Ⓛ
(TO FULL ERASE HEAD)
FE HEAD GND
FE HEAD
S-PHOTO
5V
(TO A/C HEAD)
CTL GND
CTL
GND
AE HEAD GND
AE HEAD
A.HEAD (P)
A.HEAD (R)

Back Page:
SYSTEM CONTROL Section

3-26. AUDIO SCHEMATIC DIAGRAM

◀■ MAIN SIGNAL PATH IN REC MODE ◁□ MAIN SIGNAL PATH IN PLAYBACK MODE


F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
TO SUB VIDEO
SP Ⓛ
A.D REC Ⓗ
TO SYSTEM CONTROL
V.EE Ⓗ
S-TAPE Ⓛ
FADE Ⓛ
S.TAB Ⓛ
AD BATTERY ⊕
AD BATTERY ⊖
START/STOP SW
V.D REC Ⓛ
C4044 0.068
TO SYSTEM CONTROL
AD REC Ⓛ
A.EE Ⓗ
A.MUTE Ⓗ
S.TAB 8.6V
S-PHOTO
FM D REC Ⓛ
(TO FULL ERASE HEAD) P4003
FE HEAD GND
FE HEAD
S-PHOTO
5V
(TO A/C HEAD) P4002
CTL GND
CTL
GND
AE HEAD GND
AE HEAD
A.HEAD (P)
A.HEAD (R)
REG 5V
REG 9V
R4029 10K
QR4001 UN5212 (PB/REC SELECT)
7.9 (0)
0 (8.0)
22K
22K
QR4002 UN5116 (V.D REC Ⓛ:ON)
0 (8.2)
4.7K
8.9 (0.1)
0 (8.2)
QR4005 UN5116 (AD REC Ⓛ:ON)
8.8 (8.1)
8.8 (0.1)
4.7K
0 (8.0)
R4025 1000
8.8 (7.4)
8.8 (8.1)
Q4006 2SB1219 (AD REC Ⓛ:ON)
0 (8.0)
C4045 50V1
R4026 5600
R4053 330
C4046 10V47
R4030 4700
IC4001 µPC1513G
7.9 (0)
7.4 (0.8)
0 (4.7)
VCC
GND
PB ON
REC ON
NC
0
0
0.1
C4027 10V47
C4005 1200P
T4001 EI07QF017Q
Q4004 2SD1820 (BIAS OSC)
0 (7.9)
L4001 100µ
C4018 5600P
C4019 10V22
R4020 33K
VR4002 50KB
C4020 390P
AUDIO BIAS CURR.
TP4002
TP4003
R4024 10
C4022 0.015
C4021 0.01
IC4002 µPC2300G
8.8 (8.2)
7.4 (6.8)
8.1 (7.5)
3.7
0
3.6
3.6
0
0
0
3.7
2VCC
NC
DET
PLAY
(EP:ON)
REC
MUT
PLAY
REC
ALC
(EP:ON)
(EP:ON)
NC
MUTE
3.6 (3.3)
3.7
3.7
0
3.7
3.7
0
0
3.7
3.7
C4028 16V 22
C4029 6V 22
R4032 15K
L4004 8.2mH
C4030 50V1
R4033 1200
C4031 0.012
R4034 100
R4035 180
R4036 4700
C4032 0.015
C4033 6V10
R4045 1M
C4041 6V22
TP4001
C4036 6V22
R4040 1K
C4015 2200P
R4019 39K
C4014 35V1
C4013 150P
R4014 1800
C4012 0.033
R4015 2700
R4017 180
R4016 180K
C4017 6V33
R4018 150
C4016 50V0.47
C4010 6V22
C4011 8200P
VR4001 2KB
AUDIO PB LEVEL
C4007 6V47
L4003 15m
C4008 50V1
R4013 4700
C4039 6800P
C4009 270P
R4051 330
R4022 33K
R4023 47K
C4037 10V47
T4002 EI050T004Q
C4023 0.068
Q4005 2SD1819 (OSC)
0 (8.1)
0 (0.3)
L4002 220m
R4021 33K
C4024 16V10
C4026 0.015
C4025 4700P
R4042 680K
R4041 18K
8.8 (8.2)
8.1 (7.5)
7.4 (6.8)
Q4007 2SD1819 (AMP)
R4043 820
R4037 100
C4034 0.01
QR4003 UN5211 (SP Ⓛ:OFF)
10K
10K
R4039 10K
D4001 MA141K
R4038 100
C4035 8200P
QR4004 UN5212 (V-EE Ⓗ:ON)
22K
22K
TO POWER
REG 5V
REG 9V
UNREG
GND
TO AV JACK
AUDIO OUT
LINE OUT (L)
LINE OUT (R)
AV JACK J3501
P4004 (TO EAR PHONE)
AD BATTERY ⊖
START/STOP SW
AD BATTERY ⊕
EAR PHONE OUT
GND
P4005 (TO Hi-Fi AUDIO)
V.EE Ⓗ P4502-1
S-TAPE Ⓛ P4502-2
FADE Ⓛ P4502-3
1/3 PG P4502-4
CYL FG P4502-5
A.EE Ⓗ P4502-6
LINE OUT (R) P4502-7
GND P4502-8
LINE OUT (L) P4502-9
REG 5V P4502-10
S-TAB Ⓛ P4502-11
UNREG P4502-12
AUDIO OUT (N) P4502-13
A.MUTE Ⓗ P4502-14
SP Ⓛ P4502-15
RF OUT P4502-16
FM D REC Ⓛ P4502-17
AUDIO IN (N) P4502-18
P4001 (TO Hi-Fi AUDIO)
MIC GND P4507-1
TO SERVO
CTL FG
1/3 PG
FE Ⓗ
CTL GND
CTL

AUDIO Section on MAIN C.B.A.	
Transistor	
Q4004	B-15 Ⓕ
Q4005	A-14 Ⓕ
Q4006	D-5 Ⓒ
Q4007	D-15 Ⓕ
Transistor	
Q4004	B-15 Ⓕ
Q4005	A-14 Ⓕ
Q4006	D-5 Ⓒ
Q4007	D-15 Ⓕ
Transistor & Resistor	
QR4001	C-5 Ⓒ
QR4002	B-15 Ⓕ
QR4003	D-4 Ⓒ
QR4004	D-5 Ⓒ
QR4005	D-5 Ⓒ
Integrated Circuit	
IC4001	C-15 Ⓕ
IC4002	C-5 Ⓒ
Test Point	
TP4002	C-4 Ⓒ
TP4002	C-16 Ⓕ
TP4003	D-4 Ⓒ
TP4003	D-16 Ⓕ
Adjustment	
VR4001	C-16 Ⓕ
VR4002	C-16 Ⓕ
Connector	
P4001	C-4 Ⓒ
P4002	C-4 Ⓒ
P4003	B-4 Ⓒ
P4004	B-4 Ⓒ
P4005	C-4 Ⓒ

ADDRESS INFORMATION
Ⓒ... COMPONENT SIDE
Ⓕ... FOIL SIDE

POWER SUPPLY Section on MAIN C.B.A.	
Transistor	
Q1001	F-10 Ⓕ
Q1002	F-11 Ⓕ
Q1003	F-11 Ⓕ
Q1004	D-8 Ⓒ
Q1005	F-8 Ⓒ
Q1006	E-9 Ⓒ
Q1007	E-10 Ⓕ
Q1009	D-11 Ⓕ
Transistor	
QR1001	E-13 Ⓕ
QR1002	F-11 Ⓕ
QR1004	F-12 Ⓕ
QR1005	D-8 Ⓒ
QR1006	D-11 Ⓕ
Integrated Circuit	
IC1001	D-8 Ⓒ
IC1002	D-12 Ⓕ
IC1003	D-12 Ⓕ
IC1004	E-11 Ⓕ
IC1005	D-12 Ⓕ
Test Point	
TP1001	E-7 Ⓒ
TP1001	E-12 Ⓕ
TP1002	E-8 Ⓒ
TP1002	F-11 Ⓕ
TP1003	E-7 Ⓒ
TP1003	E-12 Ⓕ
TP1004	E-7 Ⓒ
TP1004	E-13 Ⓕ
TP1005	E-7 Ⓒ
TP1005	E-13 Ⓕ
TP1006	E-8 Ⓒ
TP1006	E-11 Ⓕ
Adjustment	
VR1001	D-11 Ⓕ
VR1002	E-12 Ⓕ
VR1003	F-11 Ⓕ
Connector	
P1001	A-7 Ⓒ
P1002	F-6 Ⓒ
P1003	A-9 Ⓒ

ADDRESS INFORMATION
Ⓒ... COMPONENT SIDE
Ⓕ... FOIL SIDE

SYSTEM CONTROL Section on MAIN C.B.A.	
Transistor	
Q6001	E-7 Ⓒ
Q6003	E-15 Ⓕ
Q6005	F-15 Ⓕ
Q6006	D-13 Ⓕ
Transistor & Resistor	
QR6001	D-13 Ⓕ
QR6002	D-13 Ⓕ
QR6003	D-12 Ⓕ
QR6004	D-7 Ⓒ
QR6005	E-14 Ⓕ
QR6006	C-14 Ⓕ
QR6007	C-7 Ⓒ
QR6008	E-13 Ⓕ
QR6009	C-11 Ⓕ
QR6010	D-12 Ⓕ
QR6011	C-7 Ⓒ
QR6014	F-14 Ⓕ
QR6015	F-5 Ⓒ
QR6016	E-13 Ⓕ
QR6017	C-12 Ⓕ
QR6018	C-13 Ⓕ
QR6022	D-5 Ⓒ
QR6024	E-14 Ⓕ
Integrated Circuit	
IC6001	D-6 Ⓒ
IC6002	E-14 Ⓕ
IC6003	E-6 Ⓒ
IC6004	D-15 Ⓕ
IC6005	E-5 Ⓒ
IC6006	E-5 Ⓒ
IC6007	C-6 Ⓒ
Test Point	
TP6001	E-7 Ⓒ
TP6001	E-13 Ⓕ
TP6002	E-7 Ⓒ
TP6002	E-13 Ⓕ
Adjustment	
C6003	E-13 Ⓕ
VR6001	E-14 Ⓕ
Connector	
P6001	D-4 Ⓒ
P6003	B-5 Ⓒ
P6004	D-9 Ⓒ
P6005	F-5 Ⓒ
P6009	F-5 Ⓒ
P6010	F-7 Ⓒ
P6013	B-10 Ⓒ

ADDRESS INFORMATION
Ⓒ... COMPONENT SIDE
Ⓕ... FOIL SIDE

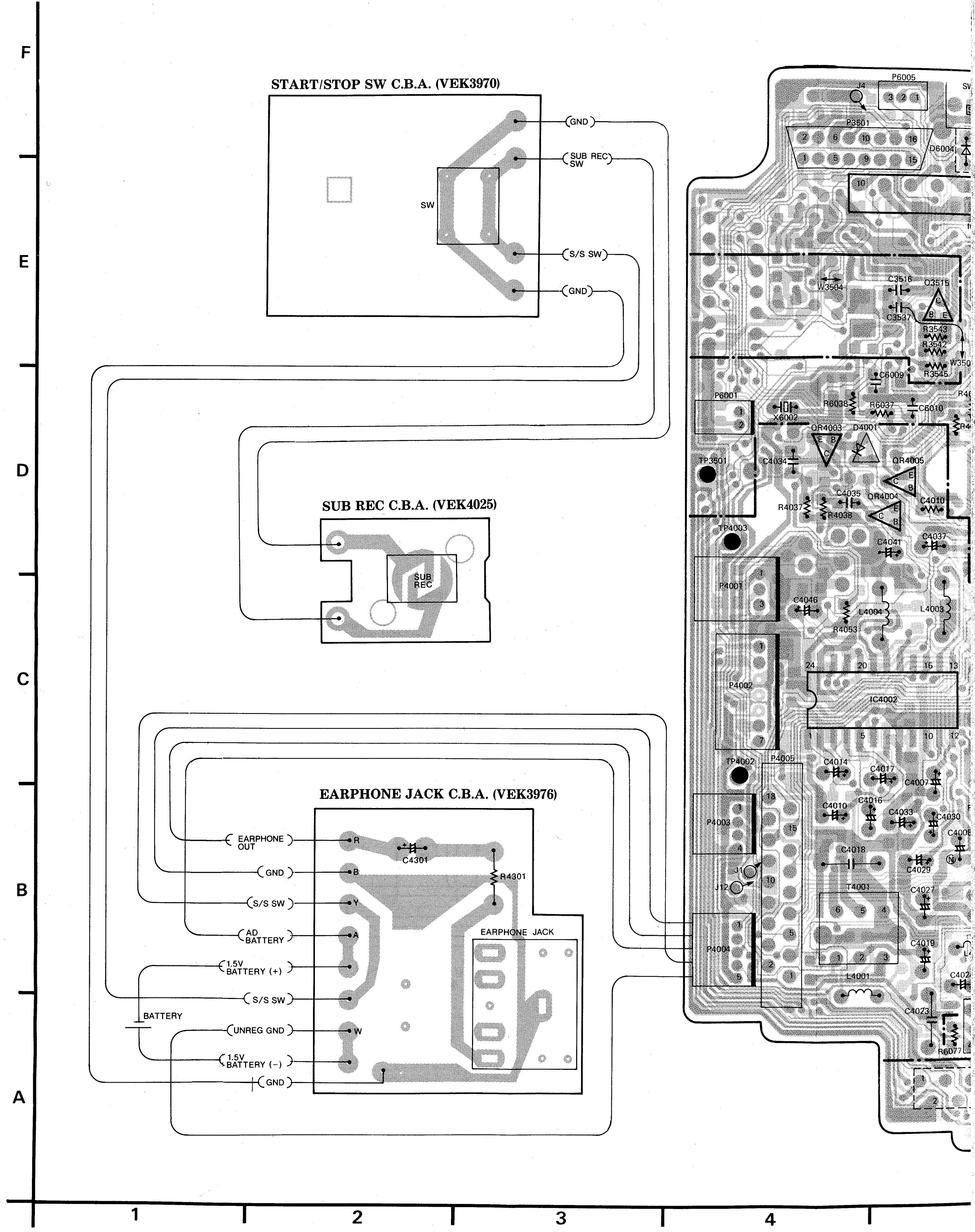
SUB VIDEO Section on MAIN C.B.A.	
Transistor	
Q3503	B-14 Ⓕ
Q3504	A-13 Ⓕ
Q3505	A-13 Ⓕ
Q3506	B-7 Ⓒ
Q3507	A-6 Ⓒ
Q3508	B-14 Ⓕ
Q3510	A-14 Ⓕ
Q3511	A-13 Ⓕ
Q3513	A-6 Ⓒ
Q3515	E-5 Ⓒ
Q3516	E-15 Ⓕ
Q3521	A-6 Ⓒ
Q3522	B-14 Ⓕ
Transistor & Resistor	
QR3503	B-14 Ⓕ
QR3505	B-14 Ⓕ
QR3508	B-6 Ⓒ
QR3511	B-14 Ⓕ
Test Point	
TP3501	D-4 Ⓒ
TP3501	D-16 Ⓕ
Connector	
P3501	F-4 Ⓒ
P3503	A-5 Ⓒ
P3504	F-7 Ⓒ

ADDRESS INFORMATION
Ⓒ... COMPONENT SIDE
Ⓕ... FOIL SIDE

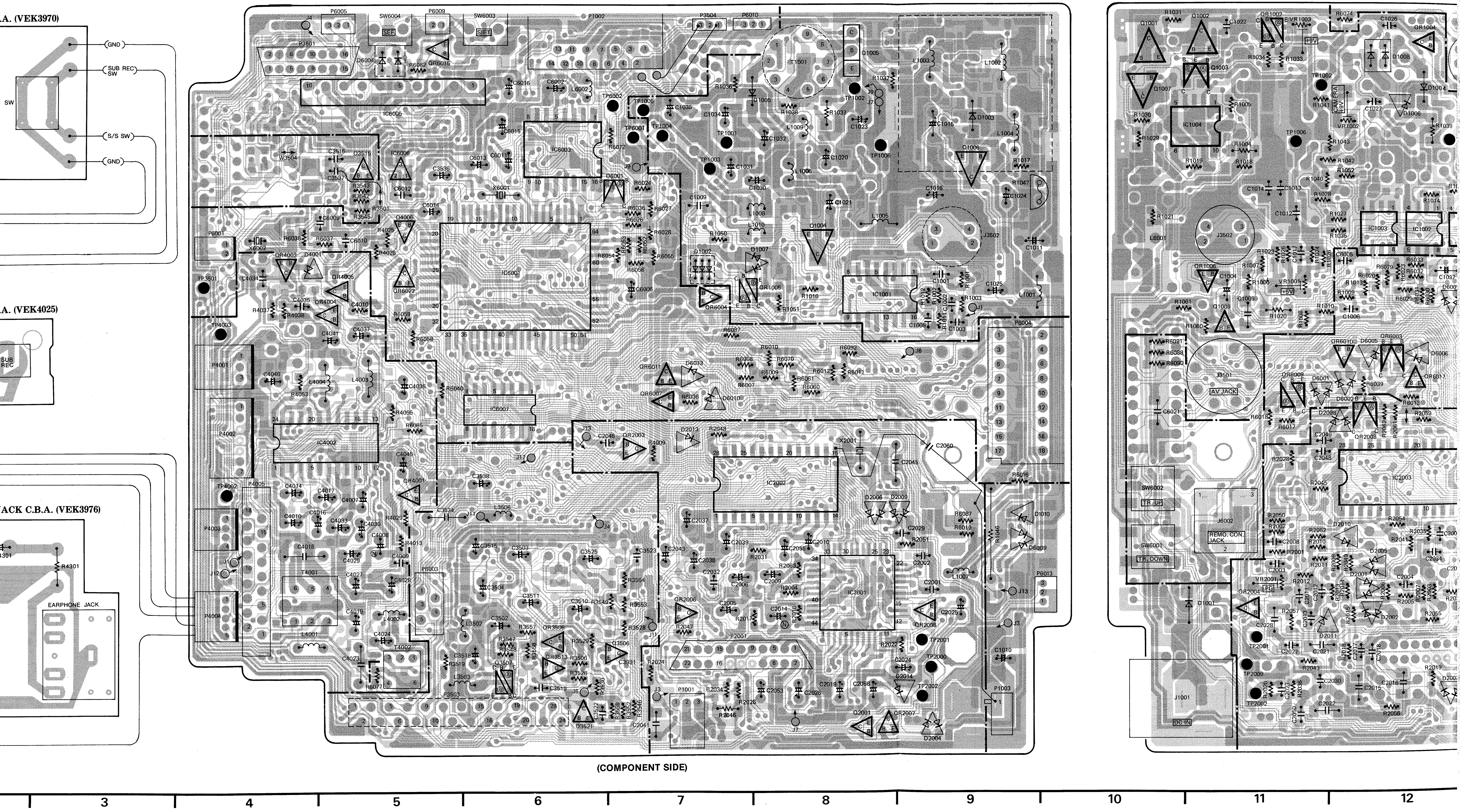
SERVO Section on MAIN C.B.A.	
Transistor	
Q2001	A-8 Ⓒ
Transistor & Resistor	
QR2003	C-7 Ⓒ
QR2004	B-11 Ⓕ
QR2005	B-9 Ⓒ
QR2006	B-7 Ⓒ
QR2007	A-9 Ⓒ
QR2008	C-12 Ⓕ
Integrated Circuit	
IC2001	B-8 Ⓒ
IC2002	C-8 Ⓒ
IC2003	C-12 Ⓕ
Test Point	
TP2000	A-9 Ⓒ
TP2000	A-11 Ⓕ
TP2001	B-9 Ⓒ
TP2001	B-11 Ⓕ
TP2002	A-9 Ⓒ
TP2002	A-11 Ⓕ
Adjustment	
VR2001	B-11 Ⓕ
Connector	
P2001	B-7 Ⓒ

ADDRESS INFORMATION
Ⓒ... COMPONENT SIDE
Ⓕ... FOIL SIDE

3-27. MAIN [POWER SUPPLY, SERVO, SYSTEM CONTROL, AUDIO C.B.A.

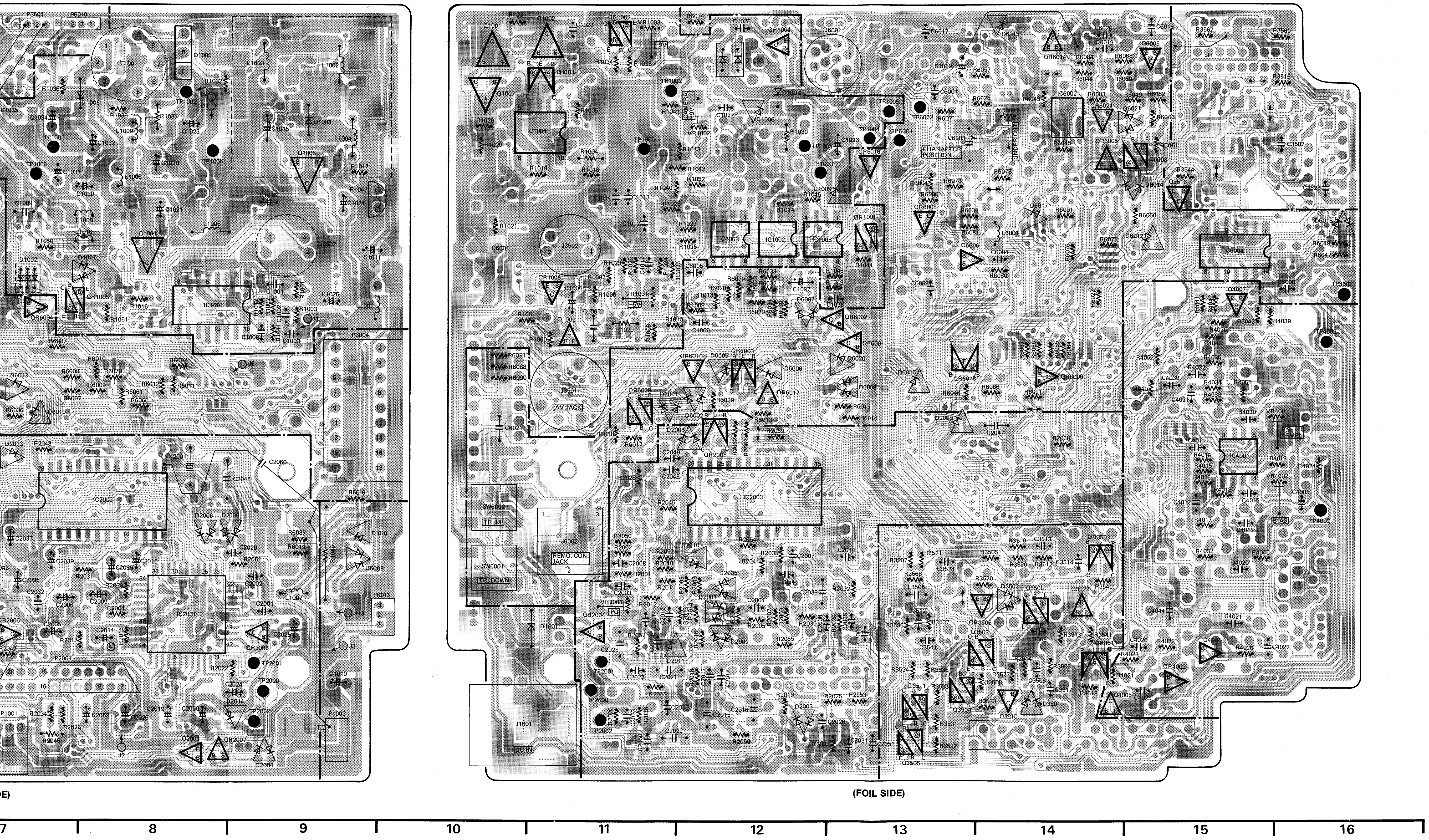

F
E
D
C
B
A
1
2
3
4
START/STOP SW C.B.A. (VEK3970)
SW
GND
SUB REC SW
S/S SW
GND
SUB REC C.B.A. (VEK4025)
SUB REC
EARPHONE JACK C.B.A. (VEK3976)
EARPHONE OUT
GND
S/S SW
AD BATTERY
1.5V BATTERY (+)
S/S SW
UNREG GND
1.5V BATTERY (−)
GND
BATTERY
R
B
Y
A
W
C4301
R4301
EARPHONE JACK
P6005
P3501
D6004
W3504
C3516
Q3515
C3537
R3543
R3542
R3545
C6009
P6001
X6002
R6038
R6037
C6010
QR4003
D4001
TP3501
C4034
QR4005
C4035
QR4004
C4010
R4037
R4038
TP4003
C4041
C4037
P4001
C4046
L4004
L4003
R4053
P4002
IC4002
TP4002
P4005
C4014
C4017
C4007
C4016
C4033
C4030
P4003
C4018
C4029
J1
J12
T4001
C4027
P4004
C4019
L4001
C4023
R6077

SERVO, SYSTEM CONTROL, AUDIO C.B.A. (VEP06572A)



A. (VEK3970)
GND
SUB REC SW
SW
S/S SW
GND
A. (VEK4025)
SUB REC
ACK C.B.A. (VEK3976)
EARPHONE JACK
SEF
SIFT
IC6001
IC6003
IC6005
IC6007
IC4002
IC2002
IC2001
IC1001
IC1002
IC1003
IC1004
IC2003
J3502
J3501
AV JACK
REMO. CON. JACK
J6002
SW6002
TR. UP
SW6001
TR. DOWN
J1001
DC IN
CAMERA
+9V
+5V
PG
3
4
5
6
7
8
9
10
11
12

(COMPONENT SIDE)



AV JACK
REMO. CON. JACK
TR. UP
TR. DOWN
DC IN
CAMERA +9V
+9V
+5V
PG
CHARACTER POSITION
UNDER CUT
P.B. LEVEL
BIAS
7
8
9
10
11
12
13
14
15
16

DE)

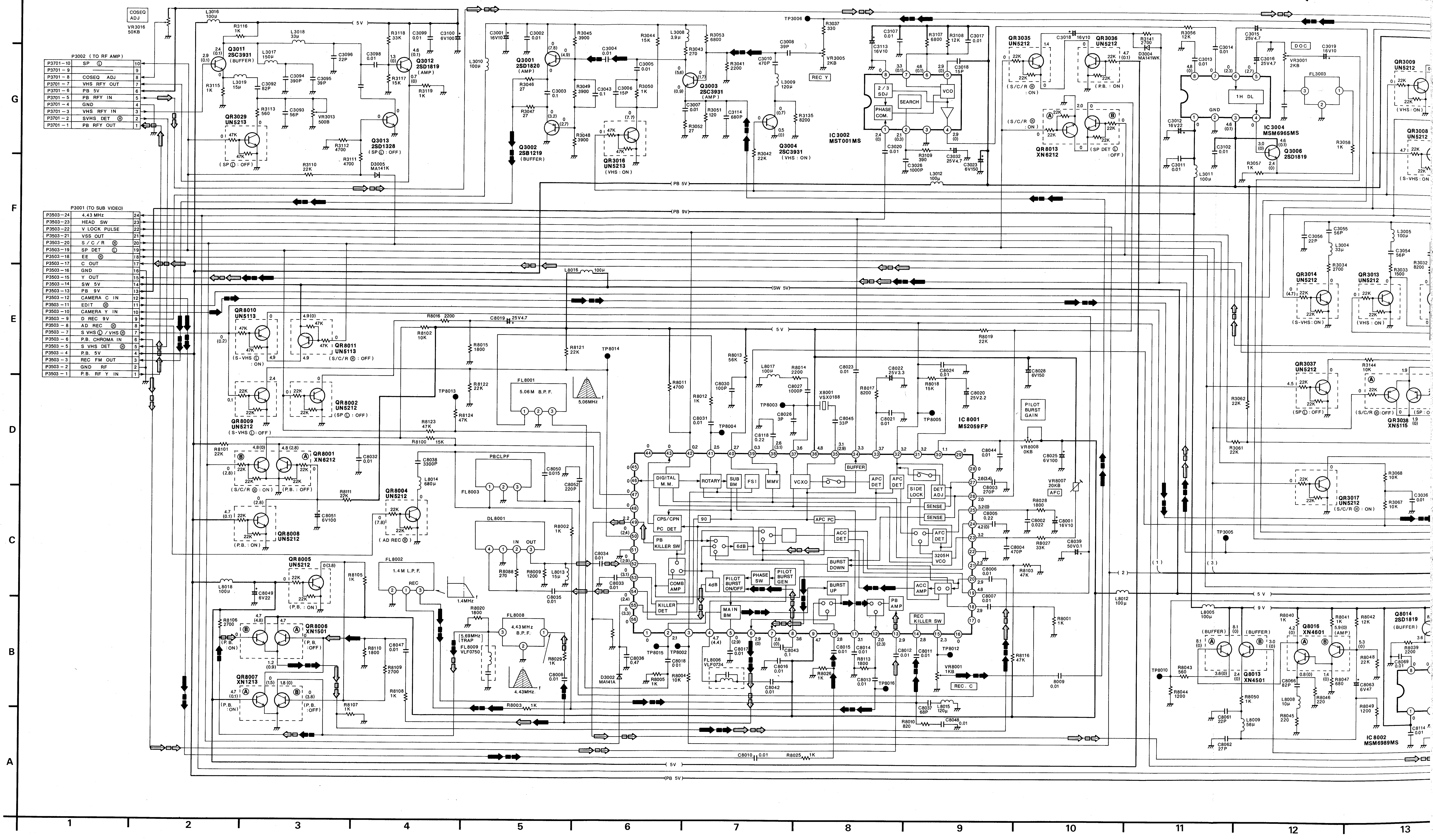
(FOIL SIDE)

Next Page:
LUMINANCE & CHROMINANCE,
PAL JOG Section

3-28. LUMINANCE & CHROMINANCE, PAL JOG SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN REC MODE (VHS)
MAIN SIGNAL PATH IN REC MODE (S-VHS)

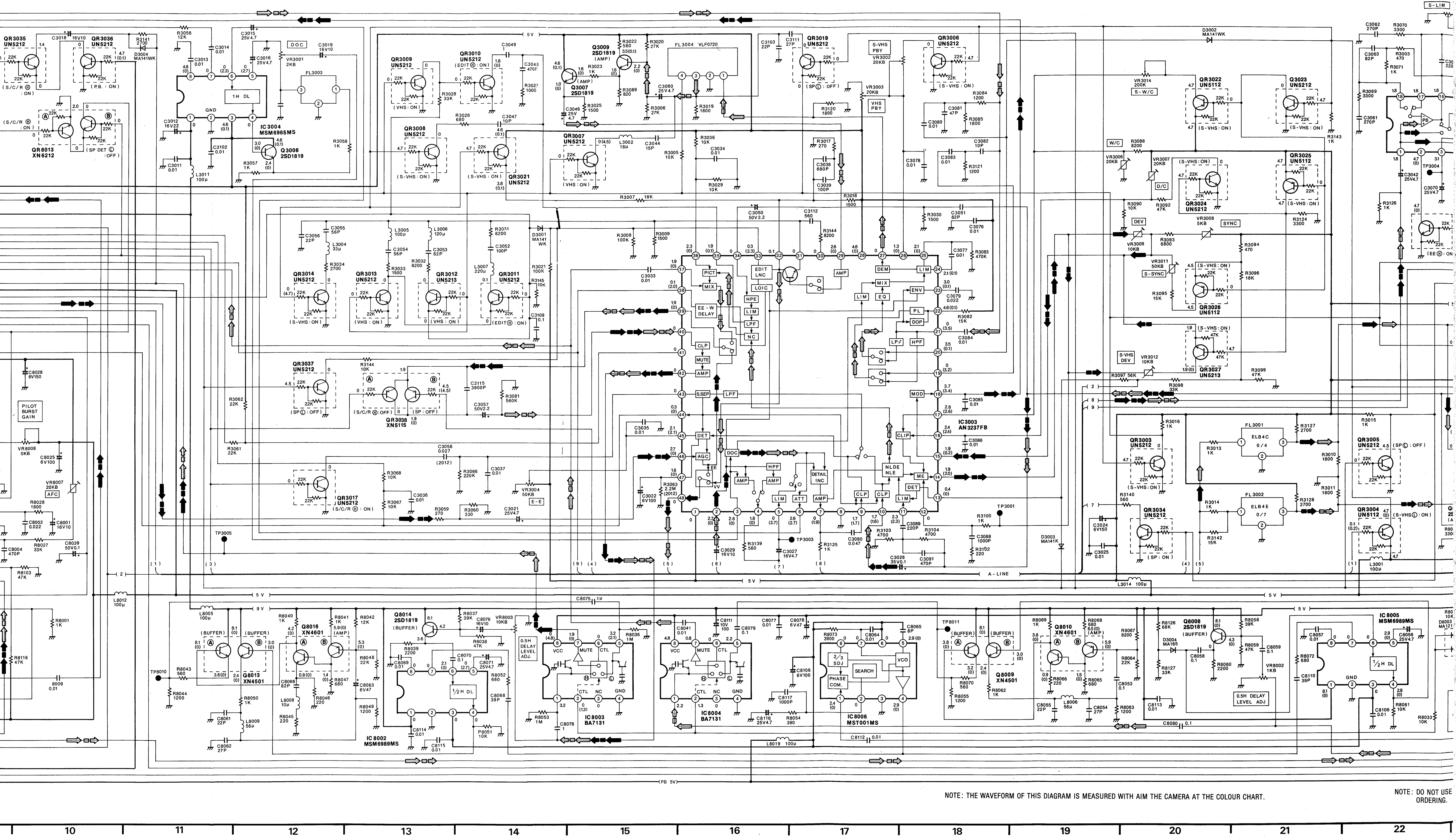
MAIN SIGNA
MAIN SIGNA



COSEQ ADJ
VR3016 50KB
P3002 (TO RF AMP)
P3701－10 SP Ⓛ 10
P3701－9 9
P3701－8 COSEQ ADJ 8
P3701－7 VHS RFY OUT 7
P3701－6 PB 5V 6
P3701－5 PB RFY IN 5
P3701－4 GND 4
P3701－3 VHS RFY IN 3
P3701－2 SVHS DET Ⓗ 2
P3701－1 PB RFY OUT 1
P3001 (TO SUB VIDEO)
P3503－24 4.43 MHz 24
P3503－23 HEAD SW 23
P3503－22 V LOCK PULSE 22
P3503－21 VSS OUT 21
P3503－20 S/C/R Ⓗ 20
P3503－19 SP DET Ⓛ 19
P3503－18 EE Ⓗ 18
P3503－17 C OUT 17
P3503－16 GND 16
P3503－15 Y OUT 15
P3503－14 SW 5V 14
P3503－13 PB 9V 13
P3503－12 CAMERA C IN 12
P3503－11 EDIT Ⓗ 11
P3503－10 CAMERA Y IN 10
P3503－9 D REC 9V 9
P3503－8 AD REC Ⓗ 8
P3503－7 S VHS Ⓛ / VHS Ⓗ 7
P3503－6 P.B. CHROMA IN 6
P3503－5 S VHS DET Ⓗ 5
P3503－4 P.B. 5V 4
P3503－3 REC FM OUT 3
P3503－2 GND RF 2
P3503－1 P.B. RF Y IN 1
Q3011 2SC3931 (BUFFER)
Q3012 2SD1819 (AMP)
Q3013 2SD1328 (SP Ⓛ : OFF)
QR3029 UN5212 (SP Ⓛ : OFF)
D3005 MA141K
Q3001 2SD1820 (AMP)
Q3002 2SB1219 (BUFFER)
QR3016 UN5213 (VHS : ON)
Q3003 2SC3931 (AMP)
Q3004 2SC3931 (VHS : ON)
VR3005 2KB
REC Y
TP3006
IC3002 MST001MS
2/3 SDJ
PHASE COM.
SEARCH
VCO
QR3035 UN5212 (S/C/R Ⓗ : ON)
QR3036 UN5212 (P.B. : ON)
QR8013 XN6212 (S/C/R Ⓗ : ON) (SP DET Ⓛ : OFF)
D3004 MA141WK
IC3004 MSM6965MS
1H DL
GND
DOC
VR3001 2KB
FL3003
Q3006 2SD1819
QR3009 UN5212 (VHS : ON)
QR3008 UN5212 (S-VHS : ON)
(PB 5V)
(PB 9V)
(SW 5V)
5V
QR3014 UN5212 (S-VHS : ON)
QR3013 UN5212 (VHS : ON)
QR3037 UN5212 (SP Ⓛ : OFF)
QR3038 XN5115 (S/C/R Ⓗ : OFF)
QR3017 UN5212 (S/C/R Ⓗ : ON)
QR8010 UN5113 (S-VHS Ⓛ : ON)
QR8011 UN5113 (S/C/R Ⓗ : OFF)
QR8009 UN5212 (S-VHS Ⓛ : OFF)
QR8002 UN5212 (SP Ⓛ : OFF)
QR8001 XN6212 (S/C/R Ⓗ : ON) (P.B. : OFF)
QR8008 UN5212 (P.B. : ON)
QR8004 UN5212 (AD REC Ⓗ)
QR8005 UN5212 (P.B. : ON)
QR8006 XN1501 (P.B. : ON) (P.B. : OFF)
QR8007 XN1213 (P.B. : ON) (P.B. : OFF)
FL8001 5.06M B.P.F.
5.06MHz
TP8014
TP8013
PBCLPF
FL8003
DL8001 IN OUT
FL8002 1.4M L.P.F. REC
1.4MHz
FL8008 4.43MHz B.P.F.
FL8009 VLF0750 [5.69MHz TRAP]
4.43MHz
IC8001 M52059FP
X8001 VSX0188
TP8003
TP8004
TP8005
PILOT BURST GAIN
VR8008 0KB
VR8007 20KB AFC
DIGITAL M.M.
ROTARY
SUB BM
FSI
MMV
VCXO
BUFFER
APC DET
SIDE LOCK
DET ADJ
SENSE
CPS/CPN PC DET
90
APC PC
PB KILLER SW
6dB
ACC DET
AFC DET
3205H VCO
BURST DOWN
COMB AMP
4dB
PILOT BURST ON/OFF
PHASE SW
PILOT BURST GEN
BURST UP
ACC AMP
KILLER DET
MAIN BM
PB AMP
REC KILLER SW
FL8006 VLF0734
D3002 MA141A
TP8015
TP8002
TP8016
TP8012
VR8001 1KB
REC. C
TP3005
Q8013 XN4501 (BUFFER)
Q8016 XN4601 (AMP)
Q8014 2SD1819 (BUFFER)
IC8002 MSM6989MS
TP8010
1 2 3 4 5 6 7 8 9 10 11 12 13
H G F E D C B A

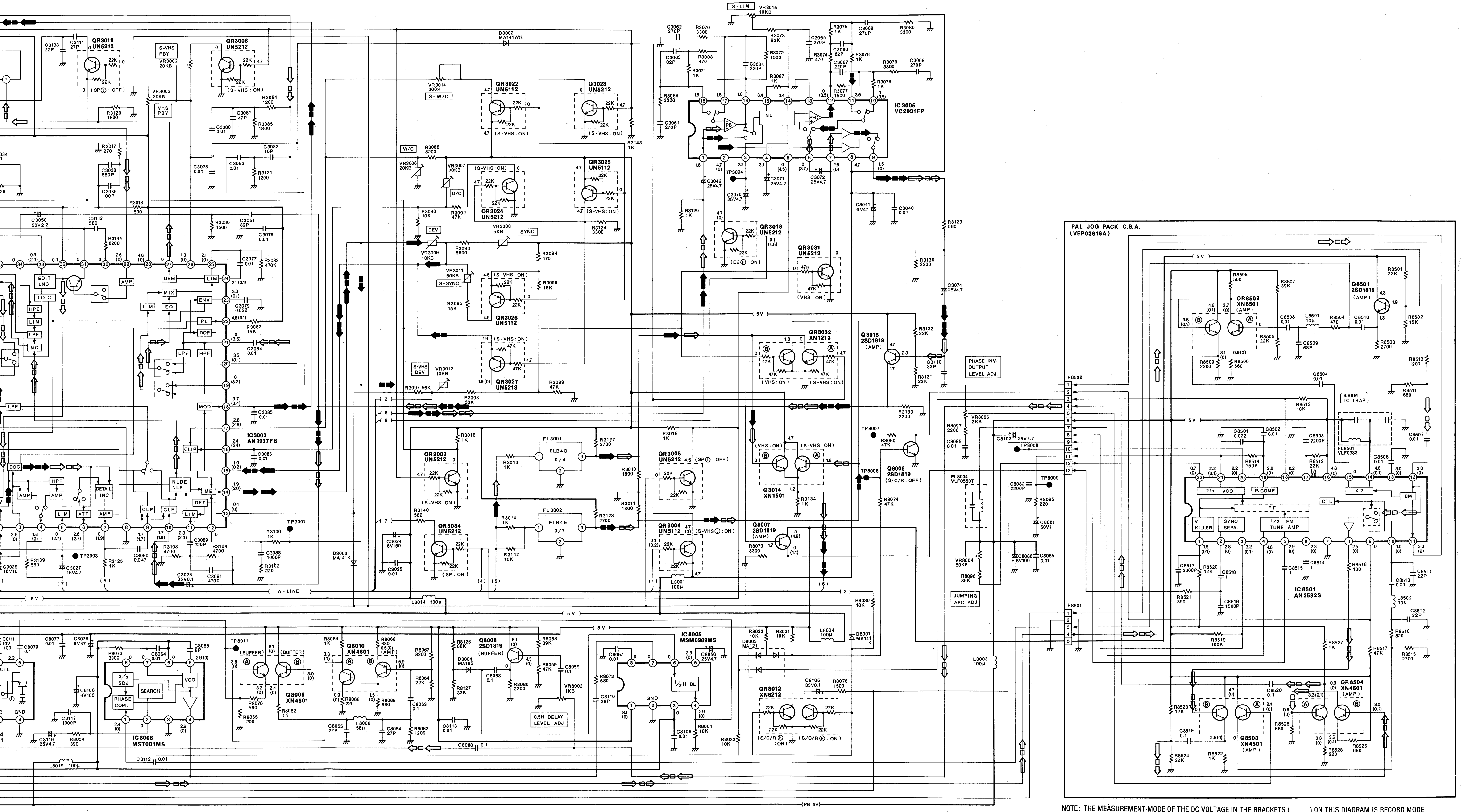
MODE (VHS)
MODE (S-VHS)

⇦ MAIN SIGNAL PATH IN PLAYBACK MODE (VHS)
⇦ MAIN SIGNAL PATH IN PLAYBACK MODE (S-VHS)


QR3035 UN5212
QR3036 UN5212
QR8013 XN6212
IC3004 MSM6965MS
1H DL
Q3006 2SD1819
FL3003
DOC
QR3009 UN5212
QR3010 UN5212
QR3008 UN5212
QR3021 UN5212
Q3009 2SD1819
Q3007 2SD1819
QR3007 UN5212
FL3004 VLF0720
QR3019 UN5212
S-VHS PBY
VHS PBY
QR3006 UN5212
QR3014 UN5212
QR3013 UN5212
QR3012 UN5213
QR3011 UN5212
QR3037 UN5212
QR3038 XN5115
QR3017 UN5212
IC3003 AN3237FB
PICT
MIX
EE-W DELAY
CLP
MUTE
AMP
S.SEP
LPF
DET
AGC
EDIT LNC
LOIC
HPE
LIM
NC
DEM
EQ
ENV
PL
DOP
MOD
CLIP
NLDE NLE
ME
ATT
DETAIL INC
PILOT BURST GAIN
AFC
E-E
S-W/C
W/C
D/C
DEV
SYNC
S-SYNC
QR3022 UN5112
Q3023 UN5212
QR3024 UN5212
QR3025 UN5112
QR3026 UN5112
QR3027 UN5213
QR3003 UN5212
QR3034 UN5212
FL3001 ELB4C
FL3002 ELB4E
QR3005 UN5212
QR3004 UN5112
S-LIM
Q8016 XN4601
Q8013 XN4601
Q8014 2SD1819
IC8002 MSM6989MS
½H DL
0.5H DELAY LEVEL ADJ.
IC8003 BA7131
IC8004 BA7131
VCC
MUTE
CTL
NC
GND
IC8006 MST001MS
SDJ
SEARCH
VCO
PHASE COM.
Q8009 XN4501
Q8010 XN4601
Q8008 2SD1819
IC8005 MSM6989MS
0.5H DELAY LEVEL ADJ
TP3001
TP3003
TP3004
TP3005
TP8010
TP8011
A-LINE
5V
9V
PB 5V
10
11
12
13
14
15
16
17
18
19
20
21
22

NOTE: THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE COLOUR CHART.

NOTE: DO NOT USE
ORDERING.


IC3003
AN3237FB
IC3005
VC2031FP
IC8005
MSM6989MS
IC8006
MST001MS
IC8501
AN3592S
PAL JOG PACK C.B.A.
(VEP03616A)
QR3019
UN5212
QR3006
UN5212
QR3022
UN5112
Q3023
UN5212
QR3024
UN5212
QR3025
UN5112
QR3026
UN5112
QR3027
UN5213
QR3018
XN5212
QR3031
UN5213
QR3032
XN1213
Q3015
2SD1819
QR3003
UN5212
QR3034
UN5212
QR3005
UN5212
QR3004
UN5112
Q3014
XN1501
Q8006
2SD1819
Q8007
2SD1819
Q8008
2SD1819
Q8009
XN4501
Q8010
XN4601
QR8012
XN6212
Q8501
2SD1819
QR8502
XN6501
Q8503
XN4501
QR8504
XN4601
S-VHS PBY
VHS PBY
S-LIM
S-W/C
W/C
D/C
DEV
SYNC
S-SYNC
S-VHS DEV
EDIT LNC
LOIC
HPE
LIM
LPF
NC
AMP
DEM
MIX
EQ
ENV
PL
DOP
HPF
MOD
CLIP
NLDE
NLE
ME
DET
DOC
DETAIL INC
ATT
CLP
FL3001
ELB4C
FL3002
ELB4E
FL8004
VLF0550T
FL8501
VLF0333
8.86M LC TRAP
PHASE INV. OUTPUT LEVEL ADJ.
JUMPING AFC ADJ
0.5H DELAY LEVEL ADJ
1/2H DL
2/3 SDJ
PHASE COM.
SEARCH
VCO
P8501
P8502
21h
SYNC SEPA.
P-COMP
FF
1/2 FM TUNE AMP
V KILLER
CTL
BM
X 2
A-LINE
5 V
(PB 5V)
TP3001
TP3003
TP3004
TP8006
TP8007
TP8008
TP8009
TP8011
L3001
L3014
L8003
L8004
L8006
L8019
L8501
L8502
D3002
MA141WK
D3003
MA141K
D3004
MA165
D8001
MA141
D8003
MA121
VR3002
VR3003
VR3006
VR3007
VR3008
VR3009
VR3011
VR3012
VR3014
VR3015
VR8002
VR8004
VR8005

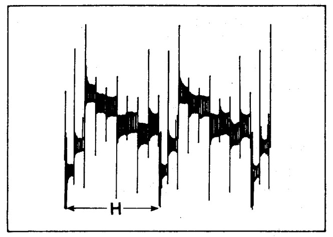
NOTE: THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE COLOUR CHART.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

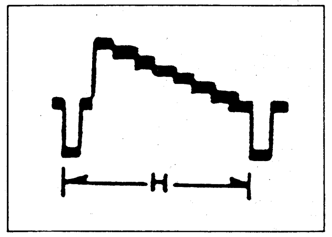
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28

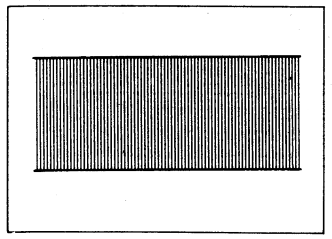
LUMINANCE & CHROMINANCE CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 3000 Series)



TP3001 REC
0.2V/20µsec. div. 0.75Vp-p

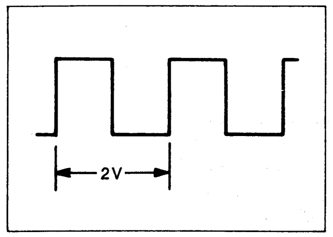


TP3005 REC/PLAY
0.1V/20µsec. div. 2Vp-p

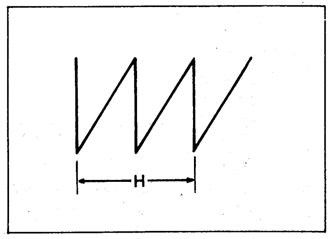


TP3006 REC
0.2V/20µsec. div. 1.2Vp-p

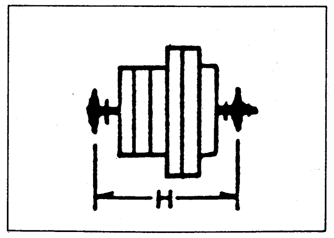
LUMINANCE & CHROMINANCE CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 8000 Series)



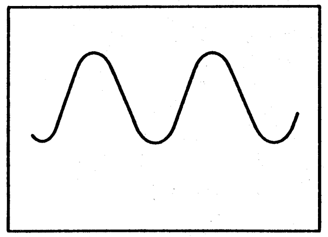
TP8002 REC/PLAY
1V/10msec. div. 4.0Vp-p



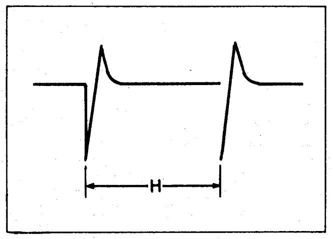
TP8008 PLAY
0.5V/20µsec. div. 2.2Vp-p



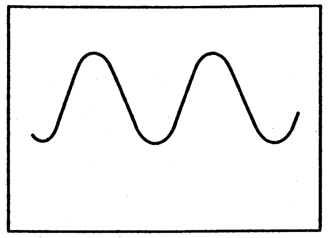
TP8012 REC
0.1V/20µsec. div. 0.4Vp-p



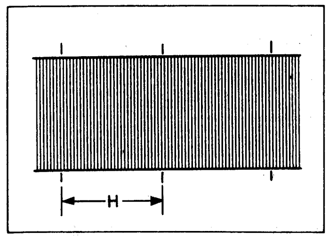
TP8003 REC/PLAY
0.1V/0.1µsec. div. 0.5Vp-p



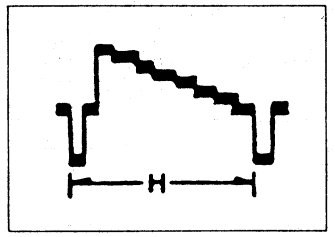
TP8009 PLAY
50mV/20µsec. div. 230mVp-p



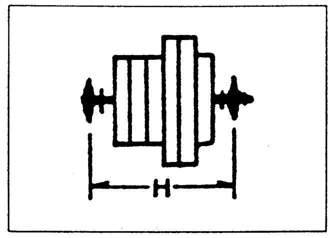
TP8015 PLAY
0.1V/0.1µsec. div. 0.16Vp-p



TP8004 REC/PLAY
0.2V/20µsec. div. 0.7Vp-p

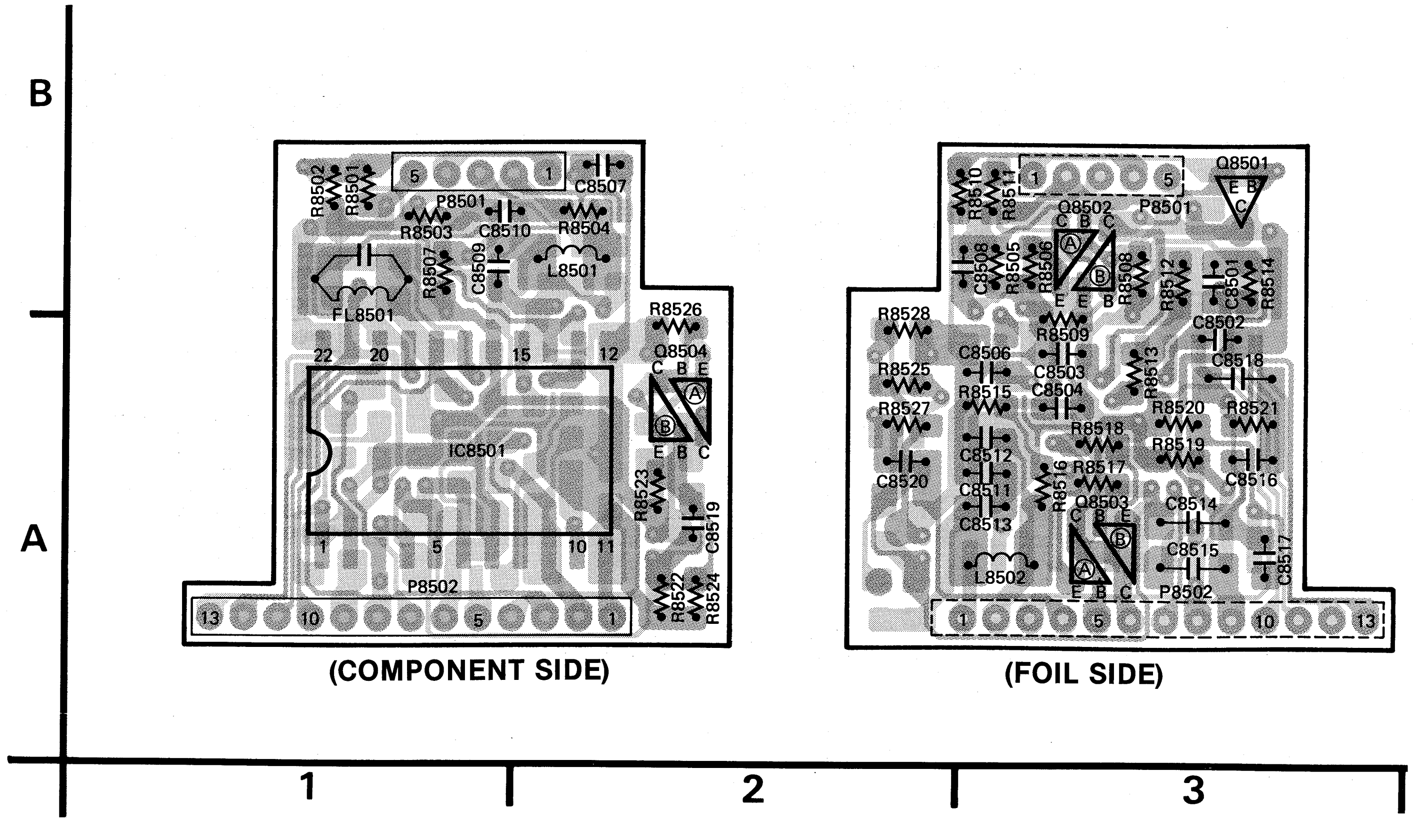


TP8010 PLAY
0.5V/20µsec. div. 2Vp-p



TP8016 REC
0.2V/20µsec. div. 1.2Vp-p

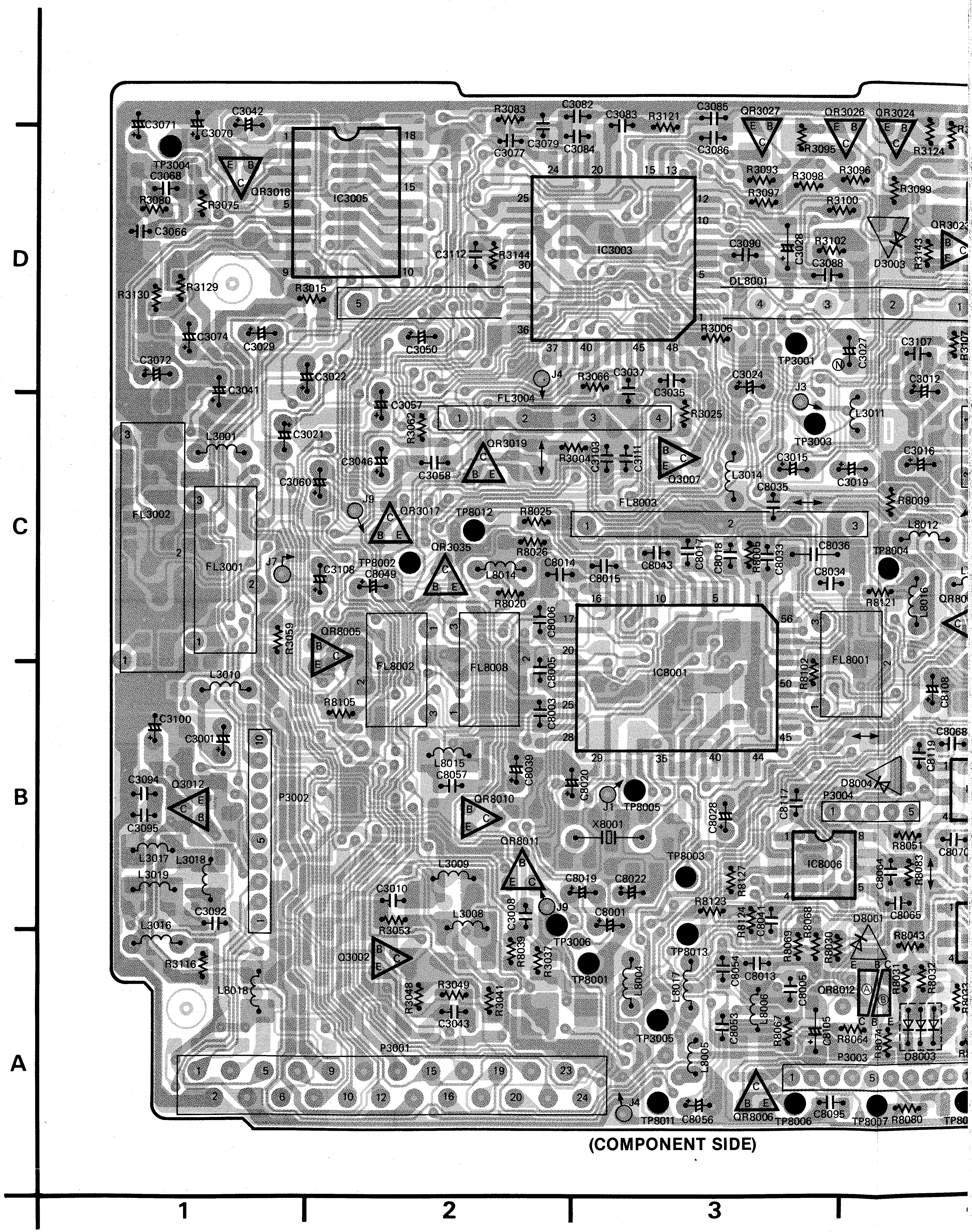
3-29. PAL JOG C.B.A. (VEP03616A)


B
A
1
2
3
IC8501
P8501
P8502
FL8501
L8501
L8502
Q8501
Q8502
Q8503
Q8504
R8501
R8502
R8503
R8504
R8507
R8526
R8523
R8522
R8524
C8507
C8509
C8510
C8519
R8528
R8525
R8527
C8520
C8506
C8503
C8504
R8515
R8509
R8513
R8518
R8517
R8516
R8520
R8521
R8519
C8502
C8518
C8516
C8514
C8515
C8517
C8501
C8508
C8511
C8512
C8513
R8505
R8506
R8508
R8510
R8511
R8512
R8514

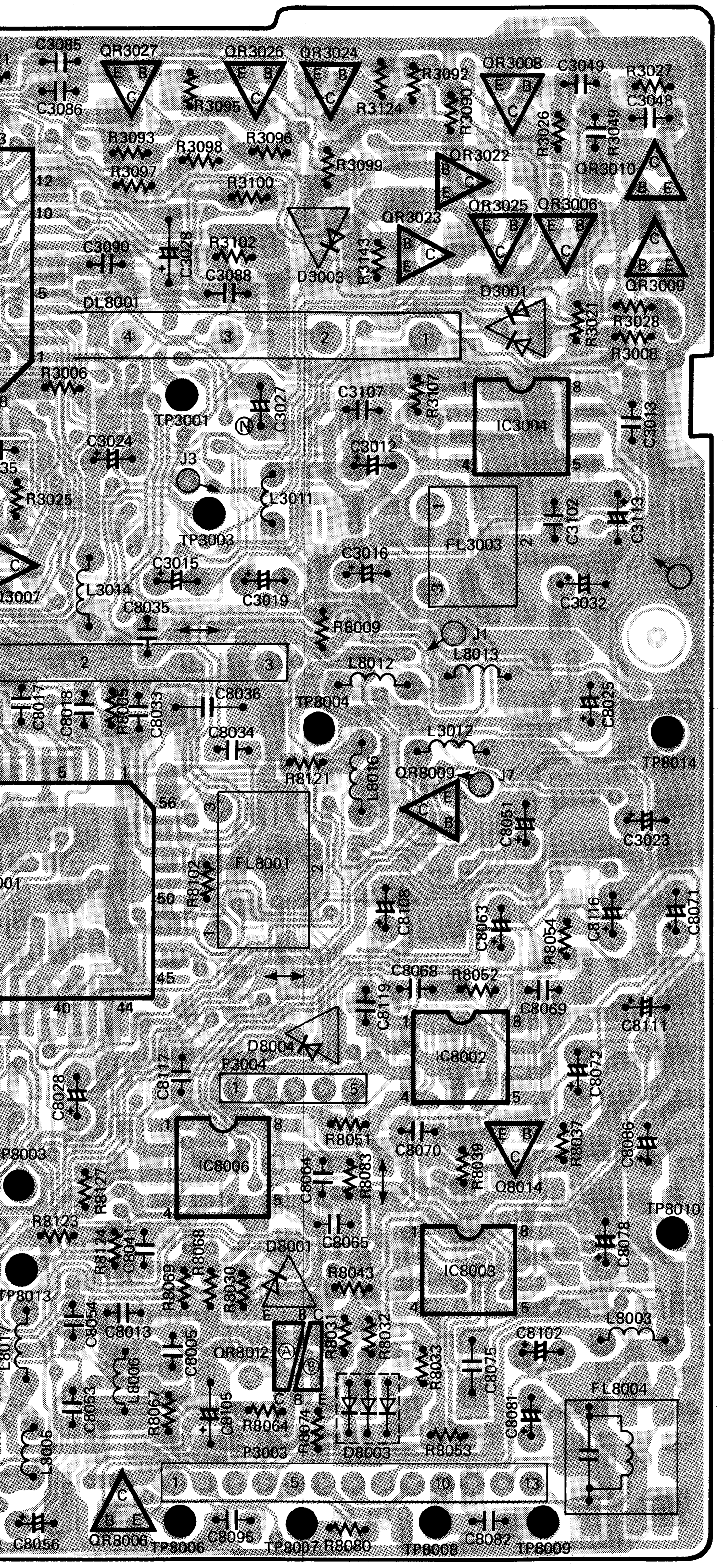
(COMPONENT SIDE)

(FOIL SIDE)

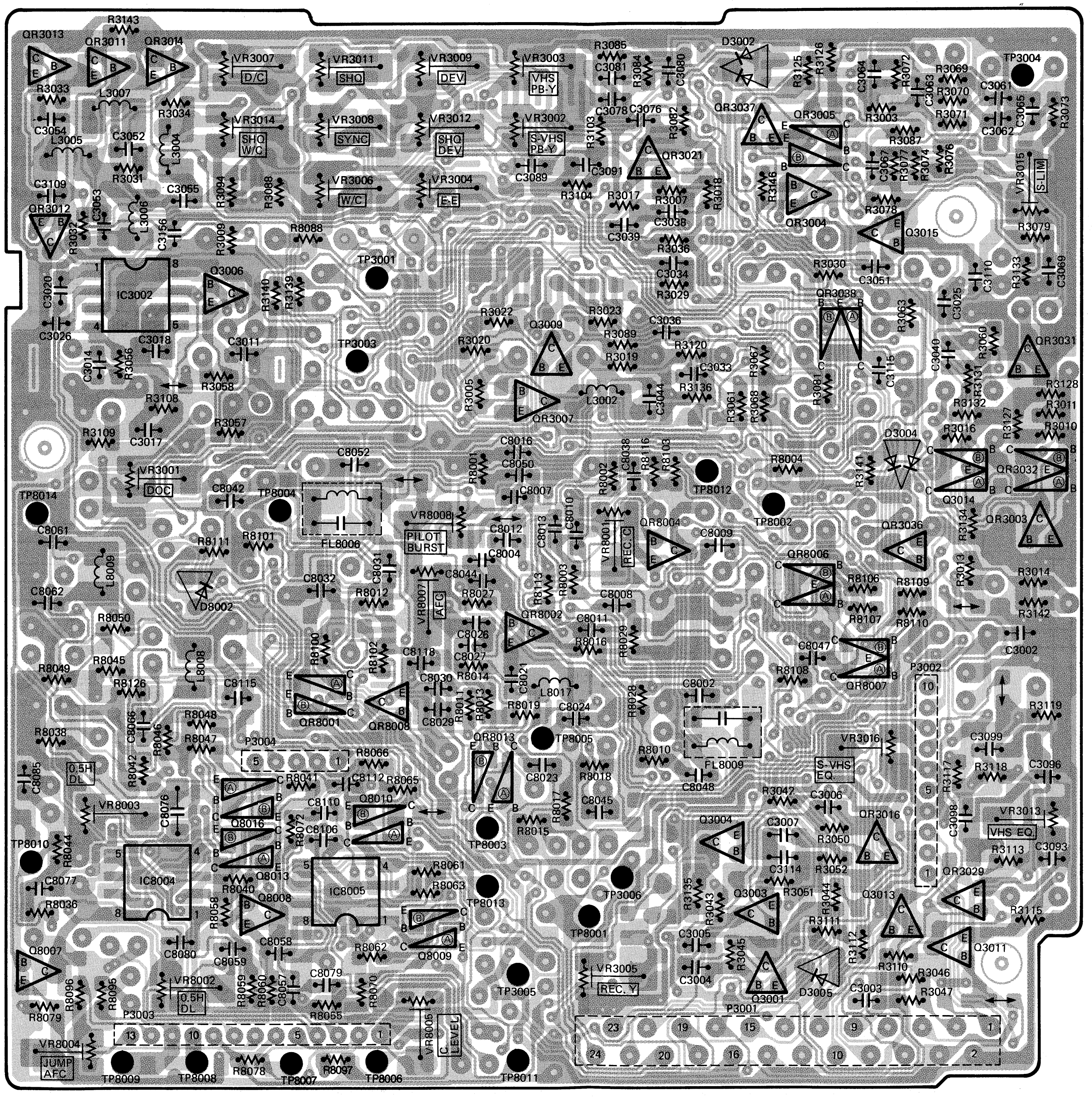
3-30. LUMINANCE & CHROMINANCE C.B.A. (VEP03617A)


D
C
B
A
1
2
3
IC3005
IC3003
IC8001
IC8006
FL3001
FL3002
FL3004
FL8001
FL8002
FL8003
FL8008
DL8001
P3001
P3002
P3003
P3004
X8001
D3003
D8001
D8003
D8004
Q3002
Q3007
Q3012
QR3017
QR3018
QR3019
QR3024
QR3026
QR3027
QR3035
QR8005
QR8006
QR8010
QR8011
QR8012
TP3001
TP3003
TP3004
TP3005
TP3006
TP8001
TP8002
TP8003
TP8004
TP8005
TP8006
TP8007
TP8011
TP8012
TP8013
J1
J3
J4
J7
J9
L3001
L3008
L3009
L3010
L3011
L3014
L3016
L3017
L3018
L3019
L8004
L8005
L8006
L8012
L8014
L8015
L8016
L8017
L8018

(COMPONENT SIDE)



ENT SIDE)



(FOIL SIDE)

3 4 5 6 7 8

LUMINANCE & CHROMINANCE C.B.A.

Transistor

Q3001	A-8	Ⓕ
Q3002	A-2	©
Q3003	A-8	Ⓕ
Q3004	B-8	Ⓕ
Q3006	D-6	Ⓕ
Q3007	C-3	©
Q3009	C-7	Ⓕ
Q3011	A-8	Ⓕ
Q3012	B-1	©
Q3013	A-8	Ⓕ
Q3014	C-8	Ⓕ
Q3015	D-8	Ⓕ
Q8006	A-3	©
Q8007	A-5	Ⓕ
Q8008	A-6	Ⓕ
Q8009	A-7	Ⓕ
Q8010	B-6	Ⓕ
Q8013	B-6	Ⓕ
Q8014	B-4	©
Q8016	B-6	Ⓕ

Transistor & Resistor

QR3003	C-8	Ⓕ
QR3004	D-8	Ⓕ
QR3005	D-8	Ⓕ
QR3006	D-4	©
QR3007	C-7	Ⓕ
QR3008	D-4	©
QR3009	D-5	©
QR3010	D-4	©
QR3011	D-5	Ⓕ
QR3012	D-5	Ⓕ
QR3013	D-5	Ⓕ
QR3014	D-5	Ⓕ
QR3016	B-8	Ⓕ
QR3017	C-2	©
QR3018	D-1	©
QR3019	C-2	©
QR3021	D-7	Ⓕ
QR3022	D-4	©
QR3023	D-4	©
QR3024	D-4	©
QR3025	D-4	©
QR3026	D-4	©
QR3027	D-3	©
QR3029	A-8	Ⓕ
QR3031	C-8	Ⓕ
QR3032	C-8	Ⓕ
QR3035	C-2	©
QR3036	C-8	Ⓕ
QR3037	D-8	Ⓕ
QR3038	D-8	Ⓕ
QR8001	B-6	Ⓕ
QR8002	B-7	Ⓕ
QR8004	C-7	Ⓕ
QR8005	C-2	©
QR8006	C-8	Ⓕ
QR8007	B-8	Ⓕ
QR8008	B-6	Ⓕ
QR8009	C-4	©
QR8010	B-2	©
QR8011	B-2	©
QR8012	A-4	©
QR8013	B-7	Ⓕ

Integrated Circuit

IC3002	D-5	Ⓕ
IC3003	D-3	©
IC3004	D-4	©
IC3005	D-2	©
IC8001	B-3	©
IC8002	B-4	©
IC8003	A-4	©
IC8004	A-5	Ⓕ
IC8005	A-6	Ⓕ
IC8006	B-3	©

Test Point

TP3001	D-3	©
TP3001	D-6	Ⓕ
TP3003	C-3	©
TP3003	C-6	Ⓕ
TP3004	D-1	©
TP3004	C-6	Ⓕ
TP3005	A-3	©
TP3005	A-7	Ⓕ
TP3006	A-2	©
TP3006	A-7	Ⓕ
TP8001	A-3	©
TP8001	A-7	Ⓕ
TP8002	C-2	©
TP8002	C-8	Ⓕ
TP8003	B-3	©
TP8003	B-7	Ⓕ
TP8004	C-4	©
TP8004	D-8	Ⓕ
TP8005	B-3	©
TP8005	B-7	Ⓕ
TP8006	A-3	©
TP8006	A-6	Ⓕ
TP8007	A-4	©
TP8007	A-6	Ⓕ
TP8008	A-4	©
TP8008	A-6	Ⓕ
TP8009	A-4	©
TP8009	A-5	Ⓕ
TP8010	B-5	©
TP8010	B-5	Ⓕ
TP8011	A-3	©
TP8011	A-7	Ⓕ
TP8012	C-2	©
TP8012	C-8	Ⓕ
TP8013	A-3	©
TP8013	A-7	Ⓕ
TP8014	C-5	©
TP8014	C-5	Ⓕ

Adjustment

VR3001	C-5	Ⓕ
VR3002	D-7	Ⓕ
VR3003	D-7	Ⓕ
VR3004	D-7	Ⓕ
VR3005	A-7	Ⓕ
VR3006	D-6	Ⓕ
VR3007	D-6	Ⓕ
VR3008	D-6	Ⓕ
VR3009	D-7	Ⓕ
VR3011	D-6	Ⓕ
VR3012	D-7	Ⓕ
VR3013	D-8	Ⓕ
VR3014	D-6	Ⓕ
VR3015	D-8	Ⓕ
VR3016	D-8	Ⓕ
VR8001	C-7	Ⓕ
VR8002	A-6	Ⓕ
VR8003	B-5	Ⓕ
VR8004	A-5	Ⓕ
VR8005	A-6	Ⓕ
VR8007	B-7	Ⓕ
VR8008	C-7	Ⓕ

Connector

P3001	A-2	©
P3001	A-8	Ⓕ
P3002	B-1	©
P3002	B-8	Ⓕ
P3003	A-4	©
P3003	A-5	Ⓕ
P3004	B-4	©
P3004	B-6	Ⓕ

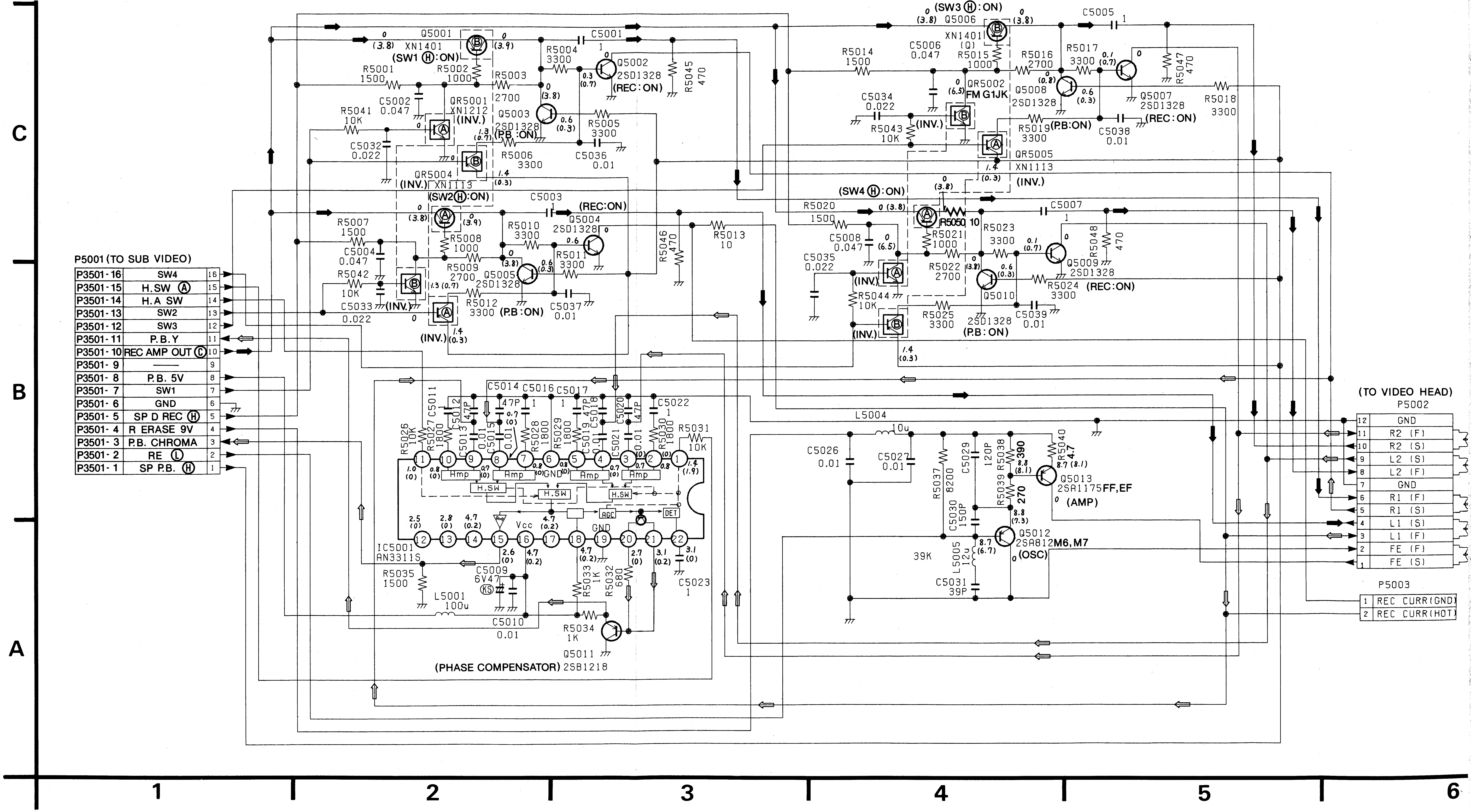
ADDRESS INFORMATION
© ... COMPONENT SIDE
Ⓕ ... FOIL SIDE

3-31. VIDEO HEAD AMP SCHEMATIC DIAGRAM

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

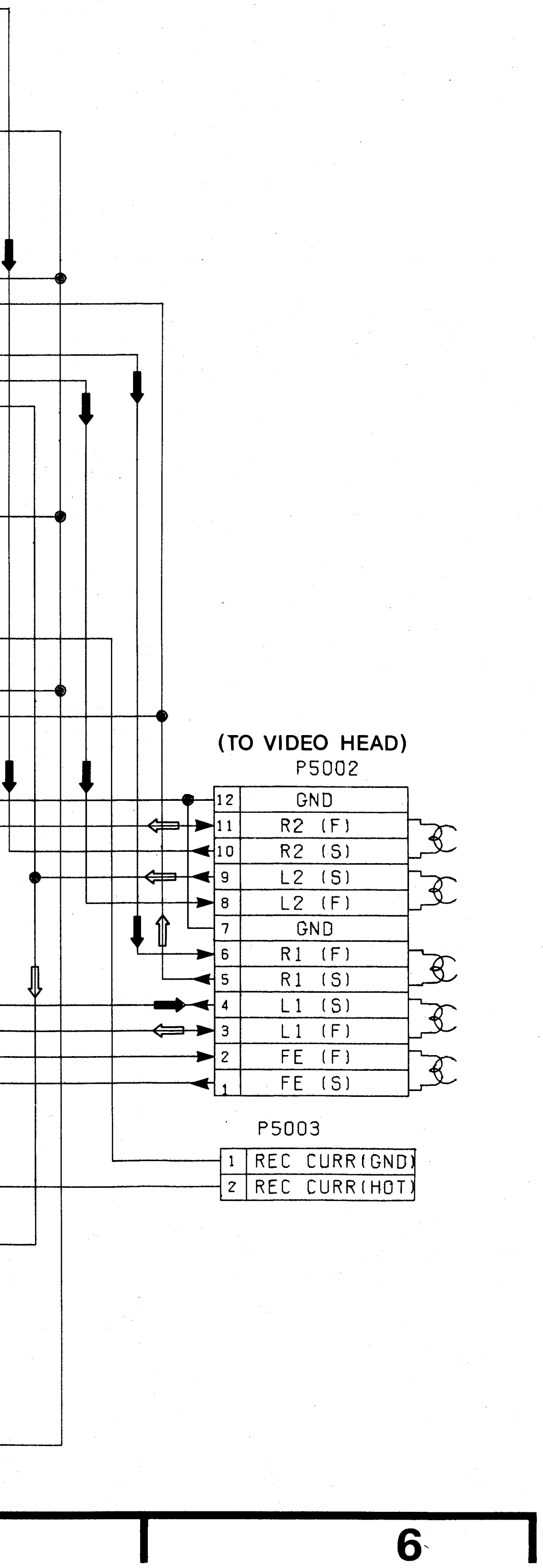
⬅ MAIN SIGNAL PATH IN REC MODE
⇦ MAIN SIGNAL PATH IN PLAYBACK M



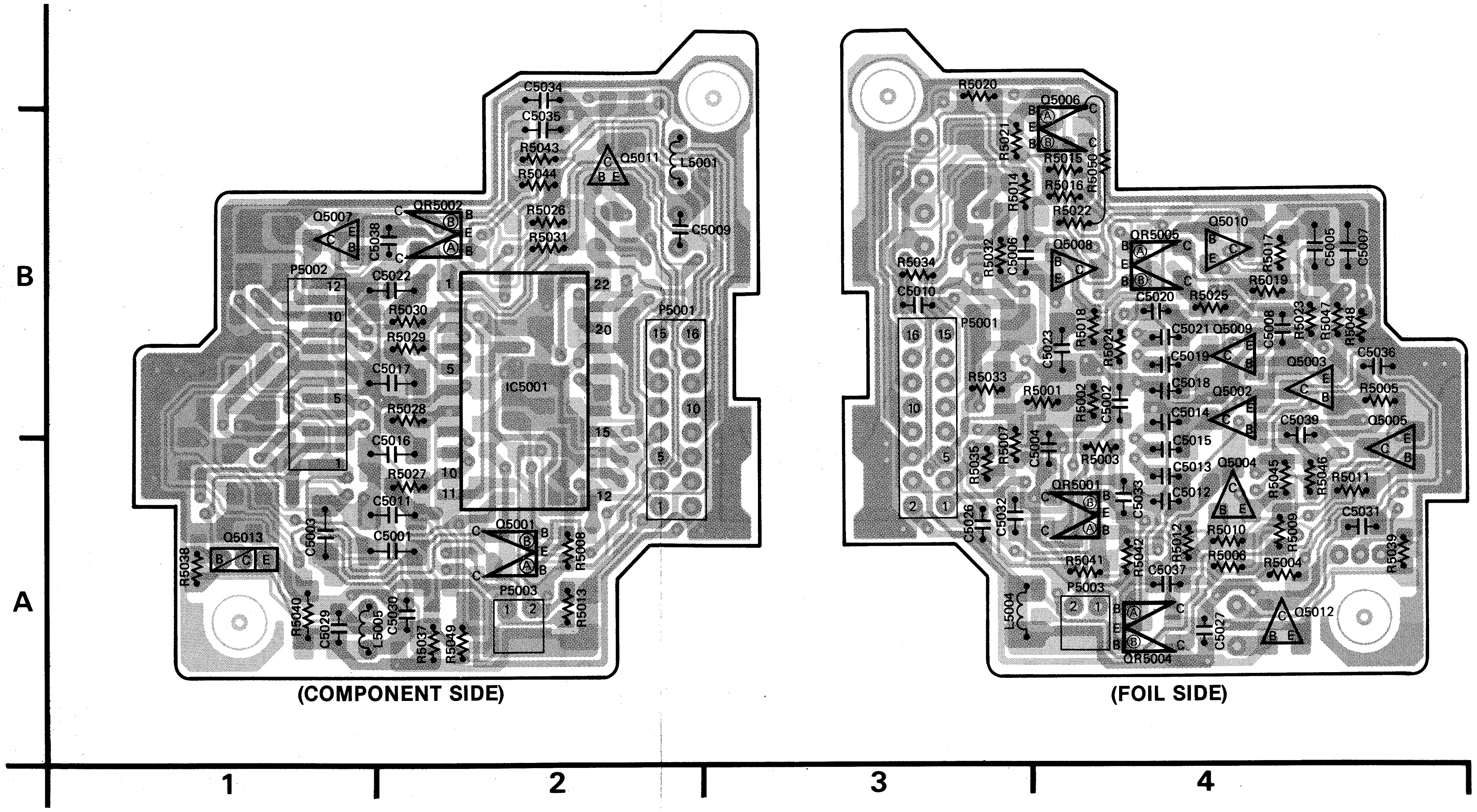
C
B
A
1
2
3
4
5
6
P5001 (TO SUB VIDEO)
P3501-16 SW4 16
P3501-15 H.SW Ⓐ 15
P3501-14 H.A SW 14
P3501-13 SW2 13
P3501-12 SW3 12
P3501-11 P.B.Y 11
P3501-10 REC AMP OUT Ⓒ 10
P3501-9 —— 9
P3501-8 P.B. 5V 8
P3501-7 SW1 7
P3501-6 GND 6
P3501-5 SP D REC Ⓗ 5
P3501-4 R ERASE 9V 4
P3501-3 P.B. CHROMA 3
P3501-2 RE Ⓛ 2
P3501-1 SP P.B. Ⓗ 1
Q5001 XN1401 (SW1 Ⓗ:ON)
Q5002 2SD1328 (REC:ON)
Q5003 2SD1328 (P.B.:ON)
QR5001 XN1212 (INV.)
QR5004 (INV.) XN1113
(SW2 Ⓗ:ON)
Q5004 2SD1328
Q5005 2SD1328
(REC:ON)
(P.B:ON)
(SW3 Ⓗ:ON) Q5006 XN1401 (Q)
Q5007 2SD1328 (REC:ON)
Q5008 2SD1328
QR5002 FM G1JK
QR5005 XN1113 (INV.)
(SW4 Ⓗ:ON)
Q5009 2SD1328
Q5010 2SD1328 (P.B:ON)
R5024 (REC:ON)
IC5001 AN3311S
Hmp
H.SW
AGC
DET
Vcc
GND
L5001 100u
L5004 10u
L5005 12u
Q5011 2SB1218
(PHASE COMPENSATOR)
Q5012 2SA812M6,M7 (OSC)
Q5013 2SA1175FF,EF (AMP)
39K
(TO VIDEO HEAD)
P5002
12 GND
11 R2 (F)
10 R2 (S)
9 L2 (S)
8 L2 (F)
7 GND
6 R1 (F)
5 R1 (S)
4 L1 (S)
3 L1 (F)
2 FE (F)
1 FE (S)
P5003
1 REC CURR(GND)
2 REC CURR(HOT)

Back Page:
LUMINANCE & CHROMINANCE,
PAL JOG Section

IGNAL PATH IN REC MODE
IGNAL PATH IN PLAYBACK MODE


(TO VIDEO HEAD)
P5002
12 GND
11 R2 (F)
10 R2 (S)
9 L2 (S)
8 L2 (F)
7 GND
6 R1 (F)
5 R1 (S)
4 L1 (S)
3 L1 (F)
2 FE (F)
1 FE (S)
P5003
1 REC CURR(GND)
2 REC CURR(HOT)
6

3-32. VIDEO HEAD AMP C.B.A. (VEP05132C)


B
A
1
2
3
4
IC5001
P5001
P5002
P5003
Q5001
Q5007
Q5011
Q5013
QR5002
L5001
Q5002
Q5003
Q5004
Q5005
Q5006
Q5008
Q5009
Q5010
Q5012
QR5001
QR5004
QR5005
L5004

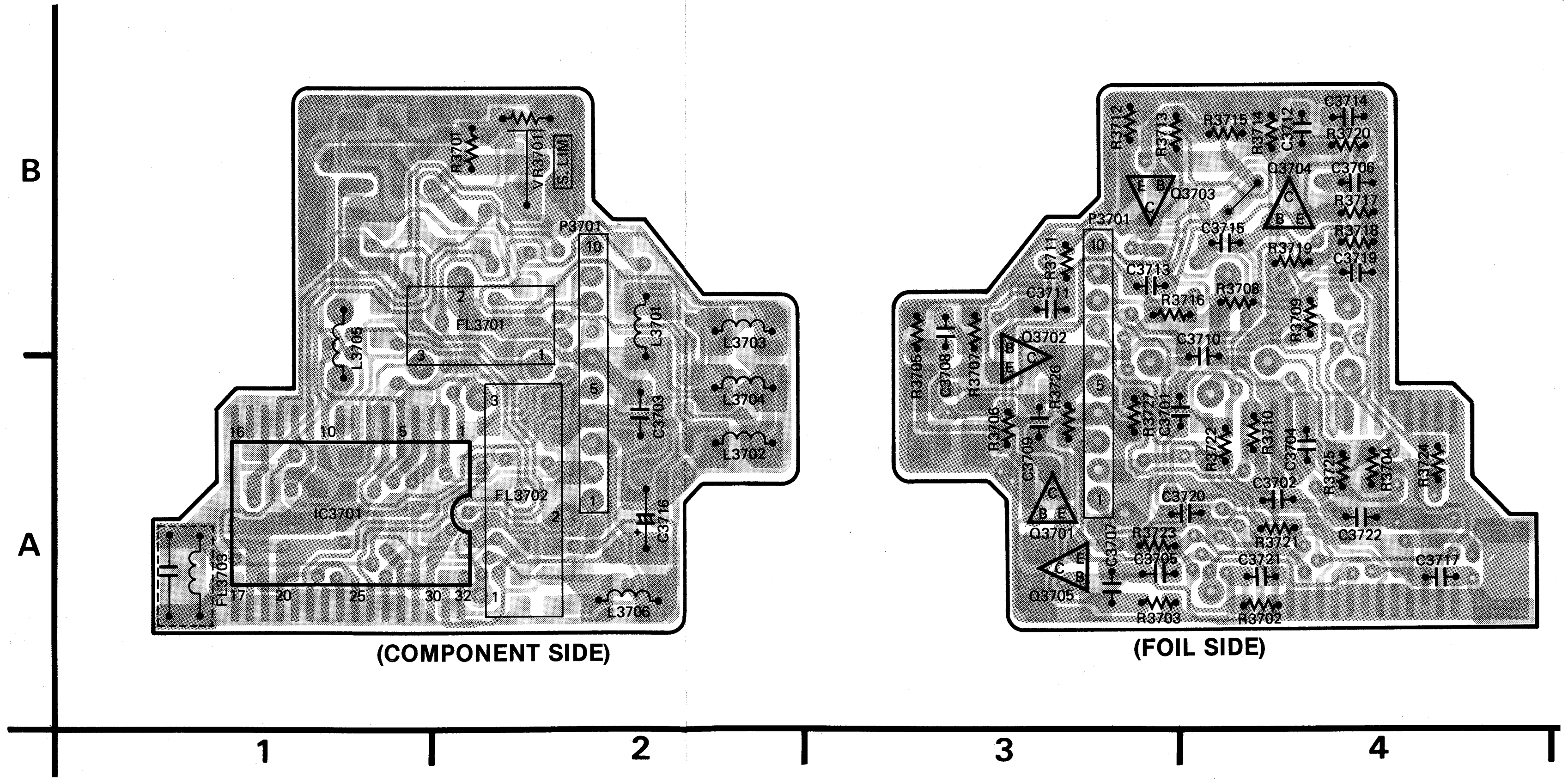
(COMPONENT SIDE)

(FOIL SIDE)

VIDEO HEAD AMP C.B.A.	
Transistor	
Q5001	A-2 ©
Q5002	B-4 Ⓕ
Q5003	B-4 Ⓕ
Q5004	A-4 Ⓕ
Q5005	B-4 Ⓕ
Q5006	B-4 Ⓕ
Q5007	B-1 ©
Q5008	B-4 Ⓕ
Q5009	B-4 Ⓕ
Q5010	B-4 Ⓕ
Q5011	B-2 ©
Q5012	A-4 Ⓕ
Q5013	A-1 ©
Transistor & Resistor	
QR5001	A-4 Ⓕ
QR5002	B-2 ©
QR5004	A-4 Ⓕ
QR5005	B-4 Ⓕ
Integrated Circuit	
IC5001	B-2 ©
Connector	
P5001	B-2 ©
P5001	B-3 Ⓕ
P5002	B-1 ©
P5003	A-2 ©
P5003	A-4 Ⓕ

ADDRESS INFORMATION
©... COMPONENT SIDE
Ⓕ... FOIL SIDE

3-33. RF AMP C.B.A. (VEP03679A)


B
A
1
2
3
4
IC3701
FL3701
FL3702
FL3703
VR3701
S.LIM
P3701
L3701
L3702
L3703
L3704
L3705
L3706
Q3701
Q3702
Q3703
Q3704
Q3705

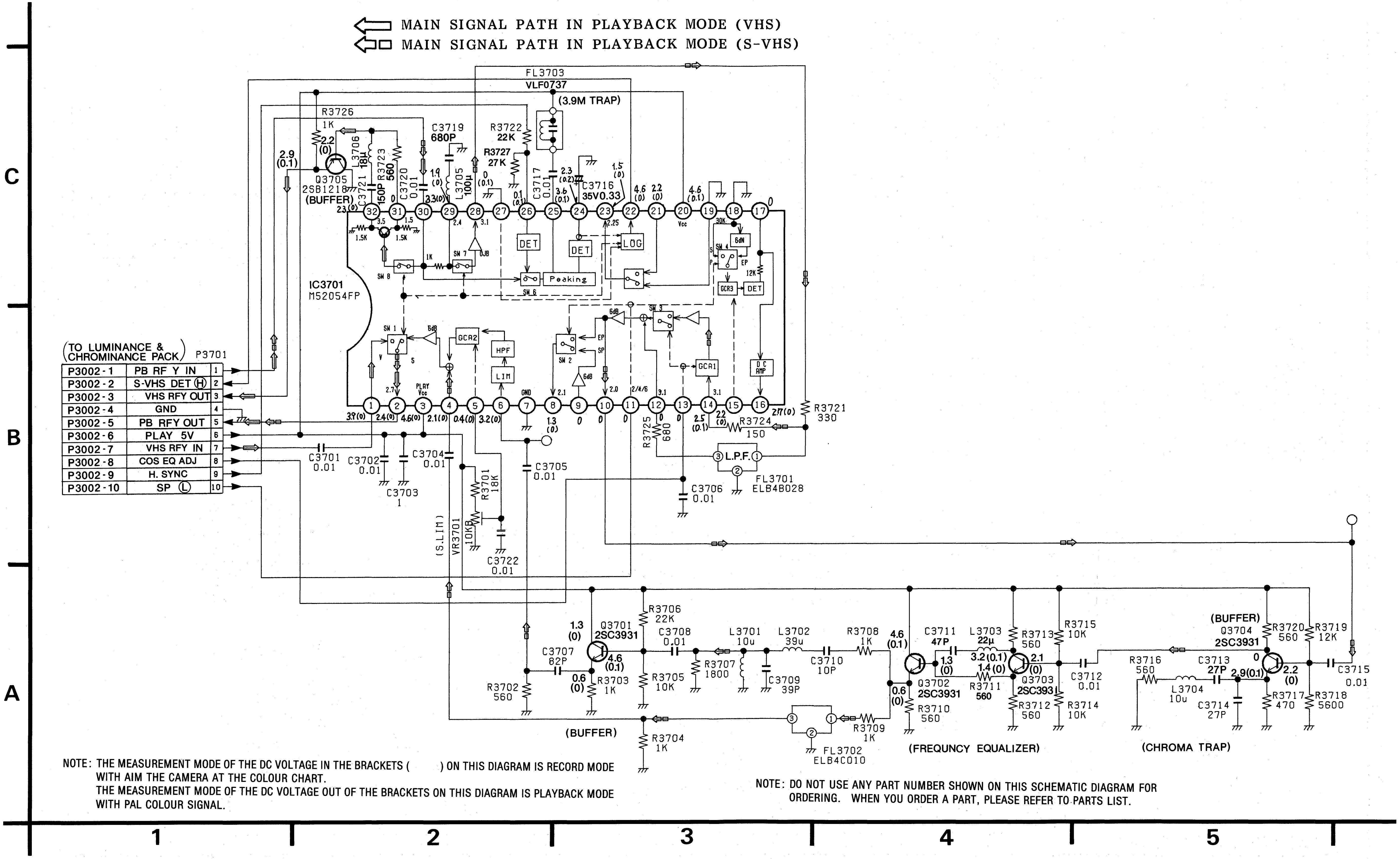
(COMPONENT SIDE)

(FOIL SIDE)

RF AMP C.B.A.	
Transistor	
Q3701	A-3 Ⓕ
Q3702	B-3 Ⓕ
Q3703	B-4 Ⓕ
Q3704	B-4 Ⓕ
Q3705	A-3 Ⓕ
Integrated Circuit	
IC3701	A-1 ©
Adjustment	
VR3701	B-2 ©
Connector	
P3701	B-2 ©
P3701	B-3 Ⓕ

ADDRESS INFORMATION
©... COMPONENT SIDE
Ⓕ... FOIL SIDE

3-34. RF AMP SCHEMATIC DIAGRAM



MAIN SIGNAL PATH IN PLAYBACK MODE (VHS)
MAIN SIGNAL PATH IN PLAYBACK MODE (S-VHS)
C
B
A
1
2
3
4
5
FL3703
VLF0737
(3.9M TRAP)
R3726
1K
Q3705
2SB1218
(BUFFER)
L3706 18µ
C3721 150P
R3723 560
C3720 0.01
C3719
680P
L3705 100µ
R3722
22K
R3727
27K
C3717 0.01
C3716
35V0.33
IC3701
M52054FP
DET
DET
LOG
Peaking
SW 6
SW 7
SW 8
SW 1
SW 2
SW 3
SW 4
GCR1
GCR2
GCR3
HPF
LIM
6dB
D C AMP
DET
12K
30K
Vcc
PLAY Vcc
GND
EP
SP
(TO LUMINANCE & CHROMINANCE PACK)
P3701
P3002-1 PB RF Y IN 1
P3002-2 S-VHS DET Ⓗ 2
P3002-3 VHS RFY OUT 3
P3002-4 GND 4
P3002-5 PB RFY OUT 5
P3002-6 PLAY 5V 6
P3002-7 VHS RFY IN 7
P3002-8 COS EQ ADJ 8
P3002-9 H. SYNC 9
P3002-10 SP Ⓛ 10
C3701
0.01
C3702
0.01
C3703
1
C3704
0.01
R3701
18K
VR3701
10KB
(S.LIM)
C3722
0.01
C3705
0.01
R3725
680
R3724
150
R3721
330
L.P.F.
FL3701
ELB4B028
C3706
0.01
Q3701
2SC3931
C3707
82P
R3702
560
R3703
1K
R3706
22K
C3708
0.01
R3705
10K
R3707
1800
R3704
1K
(BUFFER)
L3701
10u
L3702
39u
C3709
39P
C3710
10P
R3708
1K
R3709
1K
FL3702
ELB4C010
C3711
47P
L3703
22µ
Q3702
2SC3931
R3710
560
R3711
560
R3713
560
Q3703
2SC3931
R3712
560
R3715
10K
C3712
0.01
R3714
10K
(FREQUNCY EQUALIZER)
R3716
560
L3704
10u
C3713
27P
C3714
27P
(BUFFER)
Q3704
2SC3931
R3720
560
R3719
12K
R3717
470
R3718
5600
C3715
0.01
(CHROMA TRAP)

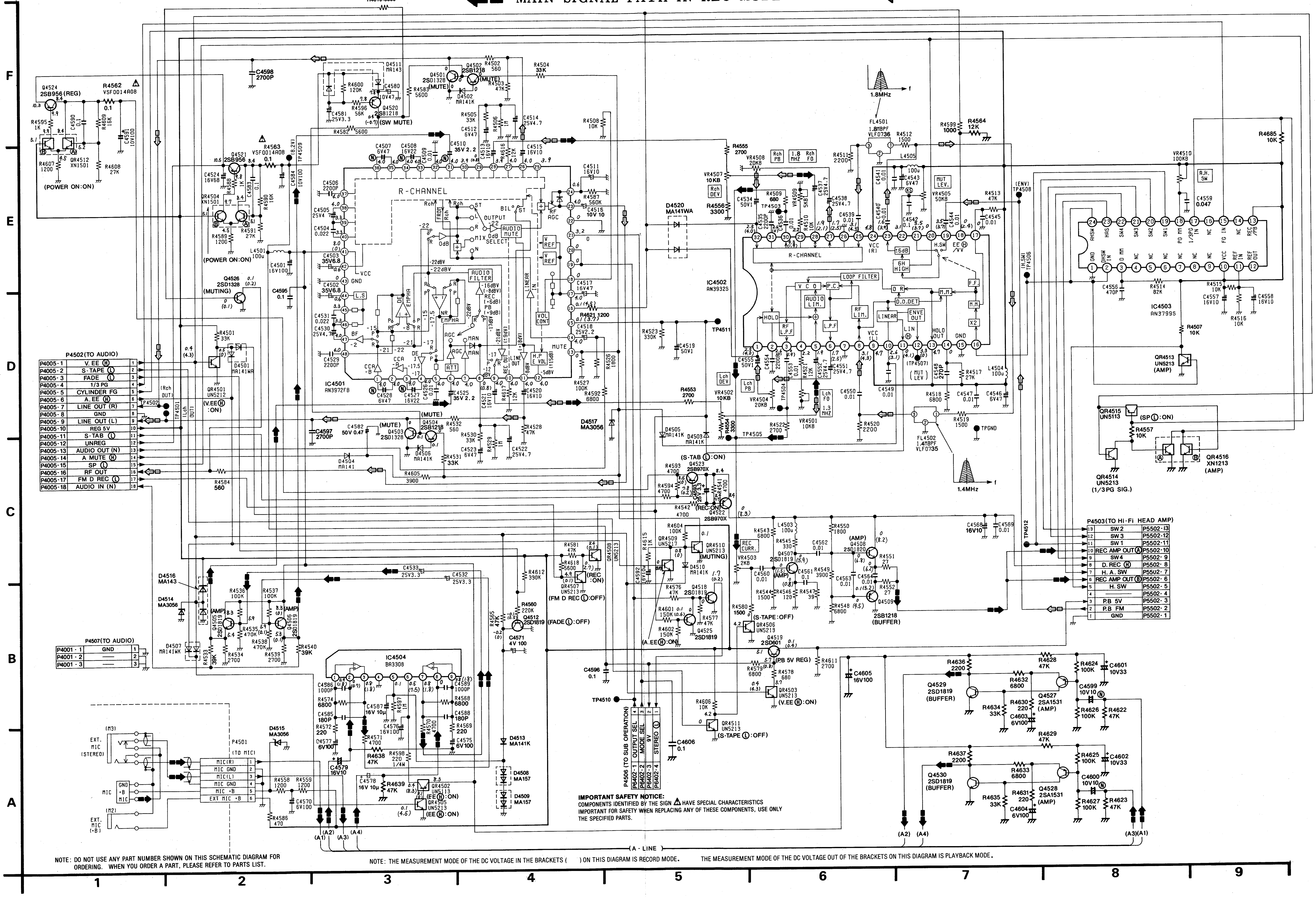
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS (   ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-35. Hi-Fi AUDIO SCHEMATIC DIAGRAM

◀■ MAIN SIGNAL PATH IN REC MODE

⇦□ MAIN SIGNAL PATH IN PLAYBACK MODE



IC4501 AN3972FB
R-CHANNEL
IC4502 AN3932S
IC4503 AN3799S
IC4504 BA3308
FL4501 1.8MBPF VLF0736
FL4502 1.4MBPF VLF0735
1.8MHz
1.4MHz
Q4524 2SB956 (REG)
R4562 VSF0014R08
QR4512 XN1501
(POWER ON:ON)
Q4521 2SB956
R4563 VSF0014R08
QR4504 XN1501
Q4526 2SD1328 (MUTING)
Q4501 2SD1328 (MUTE)
Q4502 2SB1218 (MUTE)
Q4520 2SB1218 (SW MUTE)
Q4503 2SD1328 (MUTE)
Q4504 2SB1218 (MUTE)
QR4501 UN5212 (V.EE Ⓗ:ON)
D4520 MA141WA
D4517 MA3056
Q4523 2SB970X
Q4522 2SB970X (REC:ON)
(S-TAB Ⓛ:ON)
QR4509 UN5217
QR4510 UN5213 (MUTING)
QR4508 UN5213
QR4507 UN5213 (FM D REC Ⓛ:OFF)
(REC:ON)
Q4512 2SD1819 (FADE Ⓛ:OFF)
Q4518 2SD1819
Q4525 2SD1819
(A.EE Ⓗ:ON)
QR4506 UN5213 (S-TAPE:OFF)
Q4519 2SD601 (PB 5V REG)
QR4503 UN5213 (V.EE Ⓗ:ON)
QR4511 UN5213 (S-TAPE Ⓛ:OFF)
Q4507 2SD1819 (AMP)
Q4508 2SD1820 (AMP)
Q4509 2SB1218 (BUFFER)
QR4513 UN5213 (AMP)
QR4515 UN5113 (SP Ⓛ:ON)
QR4514 UN5213 (1/3PG SIG.)
QR4516 XN1213 (AMP)
Q4505 2SD1819 (AMP)
Q4506 2SD1819 (AMP)
D4516 MA143
D4514 MA3056
D4507 MA141WK
D4515 MA3056
D4513 MA141K
D4508 MA157
D4509 MA157
QR4502 UN5113
QR4505 UN5213 (EE Ⓗ:ON)
Q4529 2SD1819 (BUFFER)
Q4527 2SA1531 (AMP)
Q4530 2SD1819 (BUFFER)
Q4528 2SA1531 (AMP)
TP4502
TP4505
TP4507
TP4508
TP4510
TP4511
TP4512
TPGND
EXT. MIC (STEREO)
(M3)
MIC
EXT. MIC (+B)
(M2)
P4501 (TO MIC)
MIC(R)
MIC GND
MIC(L)
MIC GND
MIC +B
EXT MIC +B
(A1) (A2) (A3) (A4)
(A2) (A4)
(A3)(A1)
(A - LINE)
F E D C B A
1 2 3 4 5 6 7 8 9

P4502(TO AUDIO)

P4005-1	V. EE Ⓗ	1
P4005-2	S-TAPE Ⓛ	2
P4005-3	FADE Ⓛ	3
P4005-4	1/3 PG	4
P4005-5	CYLINDER FG	5
P4005-6	A. EE Ⓗ	6
P4005-7	LINE OUT (R)	7
P4005-8	GND	8
P4005-9	LINE OUT (L)	9
P4005-10	REG 5V	10
P4005-11	S-TAB Ⓛ	11
P4005-12	UNREG	12
P4005-13	AUDIO OUT (N)	13
P4005-14	A MUTE Ⓗ	14
P4005-15	SP Ⓛ	15
P4005-16	RF OUT	16
P4005-17	FM D REC Ⓛ	17
P4005-18	AUDIO IN (N)	18

P4507(TO AUDIO)

P4001-1	GND	1
P4001-2	——	2
P4001-3	——	3

P4503(TO Hi-Fi HEAD AMP)

13	SW 2	P5502-13
12	SW 3	P5502-12
11	SW 1	P5502-11
10	REC AMP OUT Ⓐ	P5502-10
9	SW 4	P5502-9
8	D. REC Ⓗ	P5502-8
7	H. A. SW	P5502-7
6	REC AMP OUT Ⓑ	P5502-6
5	H. SW	P5502-5
4	——	P5502-4
3	P.B 5V	P5502-3
2	P.B FM	P5502-2
1	GND	P5502-1

P4506 (TO SUB OPERATION)

P64402-1	OUTPUT SEL	4
P64402-2	MODE SEL	3
P64402-3	9V	2
P64402-4	STEREO Ⓛ	1

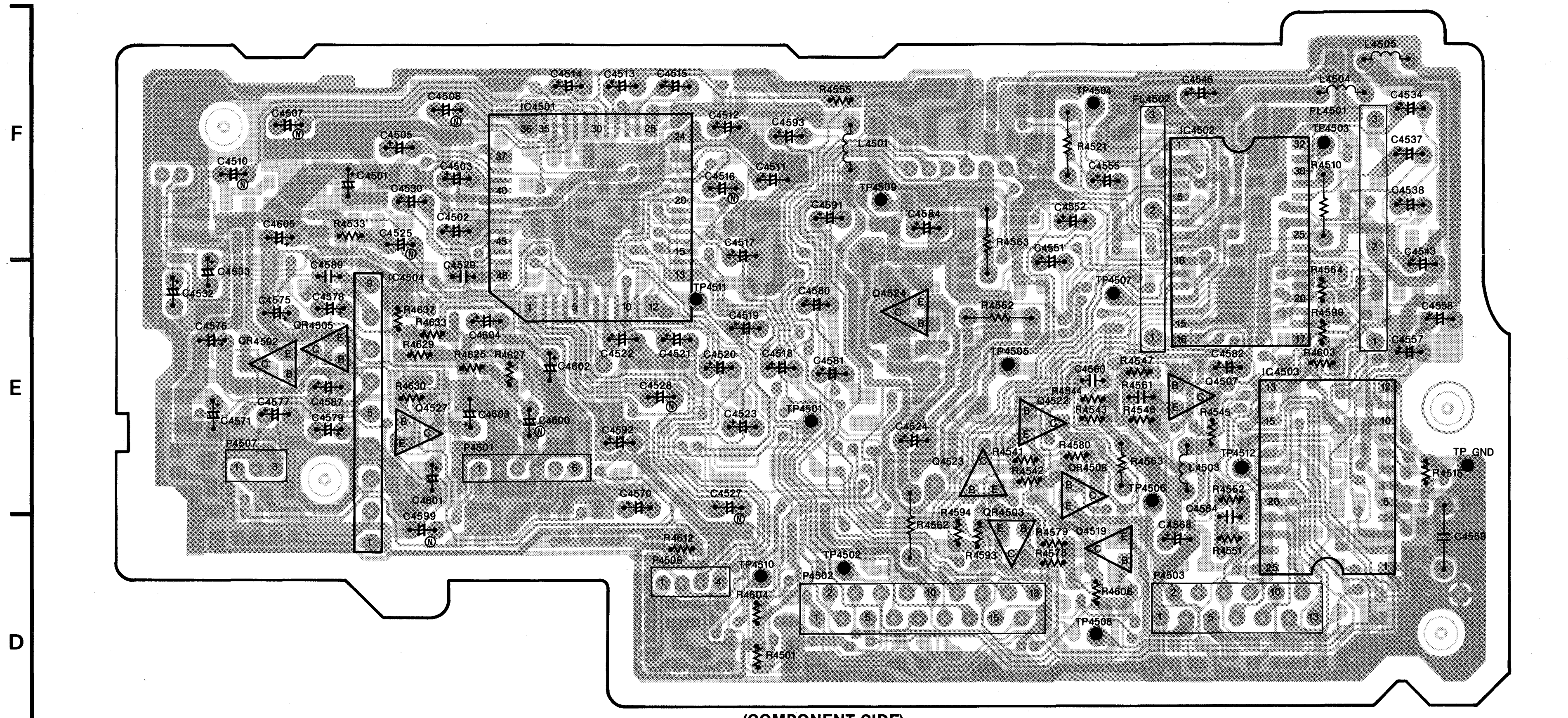
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

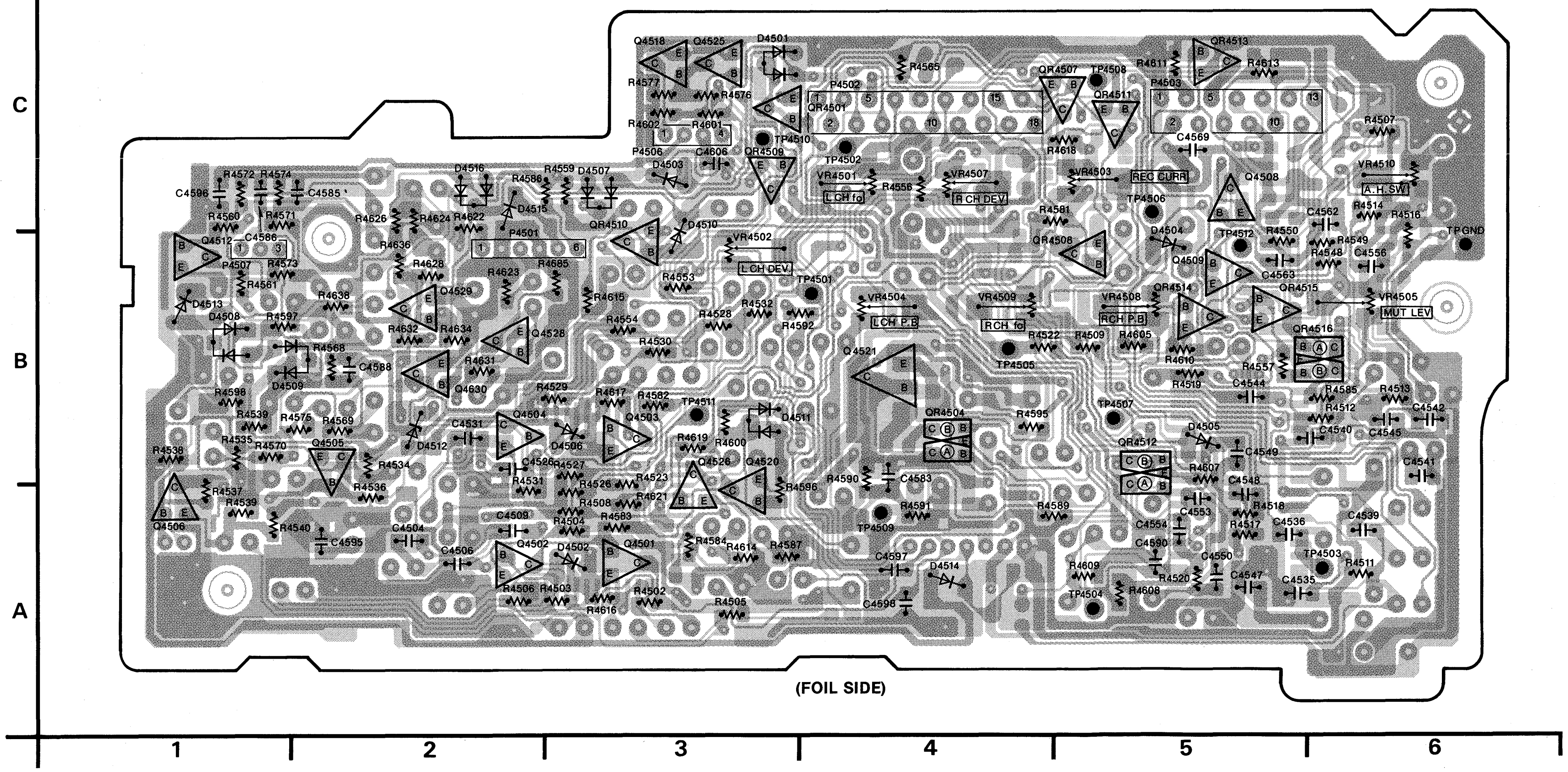
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS (   ) ON THIS DIAGRAM IS RECORD MODE. THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE.

Back Page:
RF AMP Section

3-36. Hi-Fi AUDIO C.B.A. (VEP04261A)



(COMPONENT SIDE)



(FOIL SIDE)

HI-FI AUDIO C.B.A.

Transistor		
Q4501	A-3	Ⓕ
Q4502	A-2	Ⓕ
Q4503	B-3	Ⓕ
Q4504	B-2	Ⓕ
Q4505	B-2	Ⓕ
Q4506	A-1	Ⓕ
Q4507	E-5	©
Q4508	C-5	Ⓕ
Q4509	B-5	Ⓕ
Q4512	B-1	Ⓕ
Q4518	C-3	Ⓕ
Q4519	D-5	©
Q4520	B-3	Ⓕ
Q4521	B-4	Ⓕ
Q4522	E-4	©
Q4523	E-4	©
Q4524	E-4	©
Q4525	C-3	Ⓕ
Q4526	B-3	Ⓕ
Q4527	E-2	©
Q4528	B-2	Ⓕ
Q4529	B-2	Ⓕ
Q4530	B-2	Ⓕ

Transistor & Resistor		
QR4501		
QR4502	E-1	©
QR4503	D-4	©
QR4504	B-4	Ⓕ
QR4505	E-2	©
QR4506	E-5	©
QR4507	C-5	Ⓕ
QR4508	B-5	Ⓕ
QR4509	C-3	Ⓕ
QR4510	C-3	Ⓕ
QR4511	C-5	Ⓕ
QR4512	B-5	Ⓕ
QR4513	C-5	Ⓕ
QR4514	B-5	Ⓕ
QR4515	B-5	Ⓕ
QR4516	B-6	Ⓕ

Integrated Circuit		
IC4501	F-3	©
IC4502	F-5	©
IC4503	E-5	©
IC4504	E-2	©

Test Point		
TP4501	E-4	©
TP4501	B-4	Ⓕ
TP4502	D-4	©
TP4502	C-4	Ⓕ
TP4503	F-6	©
TP4503	A-6	Ⓕ
TP4504	F-5	©
TP4504	A-5	Ⓕ
TP4505	E-4	©
TP4505	B-4	Ⓕ
TP4506	E-5	©
TP4506	C-5	Ⓕ
TP4507	E-5	©
TP4507	B-5	Ⓕ
TP4508	D-5	©
TP4508	C-5	Ⓕ
TP4509	F-4	©
TP4509	A-4	Ⓕ
TP4510	D-3	©
TP4510	C-3	Ⓕ
TP4511	E-3	©
TP4511	B-3	Ⓕ
TP4512	E-5	©
TP4512	C-5	Ⓕ
TP GND	E-6	©
TP GND	C-6	Ⓕ

Adjustment		
VR4501	C-4	Ⓕ
VR4502	B-3	Ⓕ
VR4503	C-5	Ⓕ
VR4504	B-4	Ⓕ
VR4505	B-6	Ⓕ
VR4507	C-4	Ⓕ
VR4508	B-5	Ⓕ
VR4509	B-4	Ⓕ
VR4510	C-6	Ⓕ

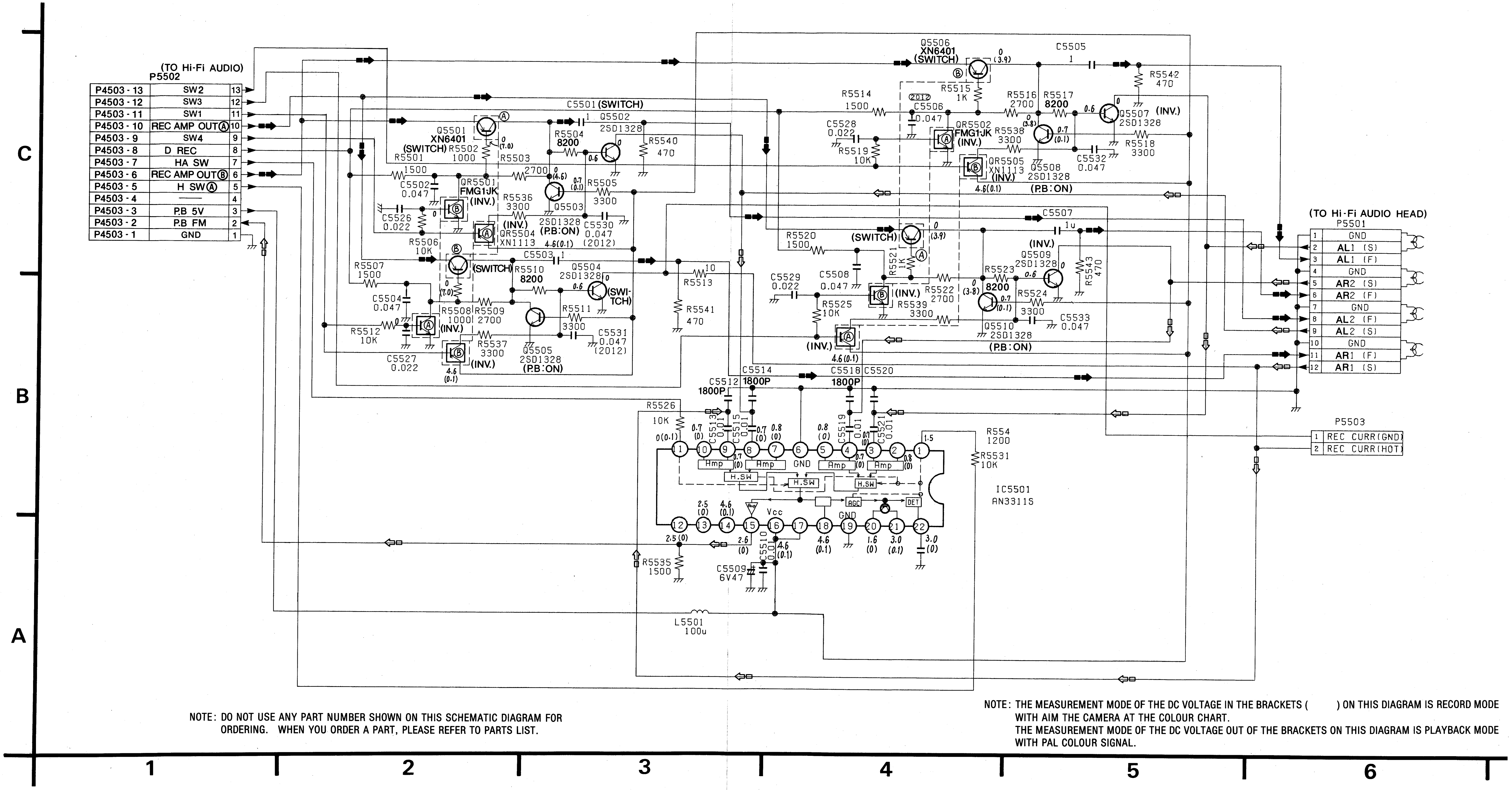
Connector		
Q4501	E-2	©
Q4501	B-2	Ⓕ
Q4502	D-4	©
Q4502	C-4	Ⓕ
Q4503	D-5	©
Q4503	C-5	Ⓕ
Q4506	D-3	©
Q4506	C-3	Ⓕ
Q4507	E-1	©
Q4507	B-1	Ⓕ

ADDRESS INFORMATION
©... COMPONENT SIDE
Ⓕ... FOIL SIDE

3-37. Hi-Fi AUDIO HEAD AMP SCHEMATIC DIAGRAM

◀■ MAIN SIGNAL PATH IN REC MODE

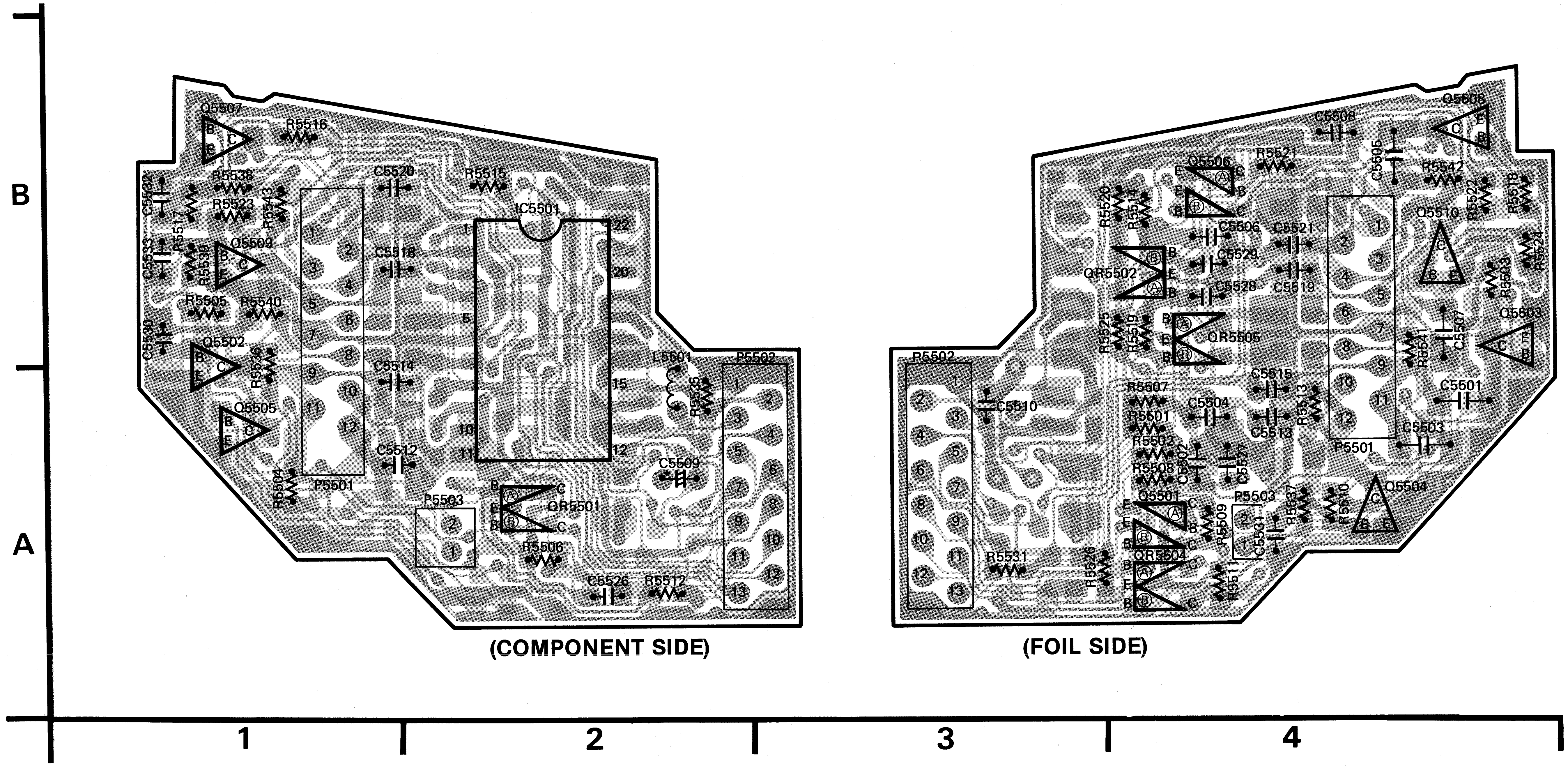
⇦□ MAIN SIGNAL PATH IN PLAYBACK MODE


(TO Hi-Fi AUDIO)
P5502
P4503 - 13 SW2 13
P4503 - 12 SW3 12
P4503 - 11 SW1 11
P4503 - 10 REC AMP OUTⒶ 10
P4503 - 9 SW4 9
P4503 - 8 D REC 8
P4503 - 7 HA SW 7
P4503 - 6 REC AMP OUTⒷ 6
P4503 - 5 H SWⒶ 5
P4503 - 4 —— 4
P4503 - 3 P.B 5V 3
P4503 - 2 P.B FM 2
P4503 - 1 GND 1
Q5501 XN6401 (SWITCH)
R5502 1000
R5501 1500
R5503
C5501 (SWITCH) 1
Q5502 2SD1328
R5504 8200
R5540 470
C5502 0.047
QR5501 FMG1JK (INV.)
R5536 3300
2700
R5505 3300
Q5503
C5526 0.022
QR5504 XN1113 (INV.)
2SD1328 (P.B:ON)
C5530 0.047 (2012)
R5506 10K
C5503 1
R5507 1500
(SWITCH)
R5510 8200
Q5504 2SD1328
(SWITCH)
C5504 0.047
R5508 1000
R5509 2700
R5511 3300
R5512 10K
(INV.)
C5531 0.047 (2012)
C5527 0.022
R5537 3300
Q5505 2SD1328 (P.B:ON)
(INV.)
R5513 10
R5541 470
Q5506 XN6401 (SWITCH)
R5515 1K
C5505 1
R5542 470
R5514 1500
C5506 0.047
R5516 2700
R5517 8200
Q5507 2SD1328 (INV.)
C5528 0.022
QR5502 FMG1JK (INV.)
R5538 3300
R5518 3300
R5519 10K
QR5505 XN1113 (INV.)
Q5508 2SD1328 (P.B:ON)
C5532 0.047
C5507 1u
R5520 1500
(SWITCH)
R5521 1K
Q5509 2SD1328 (INV.)
R5543 470
C5529 0.022
C5508 0.047
(INV.)
R5522 2700
R5523 8200
R5524 3300
R5525 10K
R5539 3300
C5533 0.047
(INV.)
Q5510 2SD1328 (P.B:ON)
C5512 1800P
C5514
C5518 1800P
C5520
R5526 10K
C5513 0.01
C5515 0.01
C5519 0.01
C5521 0.01
Amp
H.SW
GND
AGC
DET
Vcc
IC5501 AN3311S
R554 1200
R5531 10K
R5535 1500
C5509 6V47
C5510 0.01
L5501 100u
(TO Hi-Fi AUDIO HEAD)
P5501
1 GND
2 AL1 (S)
3 AL1 (F)
4 GND
5 AR2 (S)
6 AR2 (F)
7 GND
8 AL2 (F)
9 AL2 (S)
10 GND
11 AR1 (F)
12 AR1 (S)
P5503
1 REC CURR(GND)
2 REC CURR(HOT)
C
B
A
1
2
3
4
5
6

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

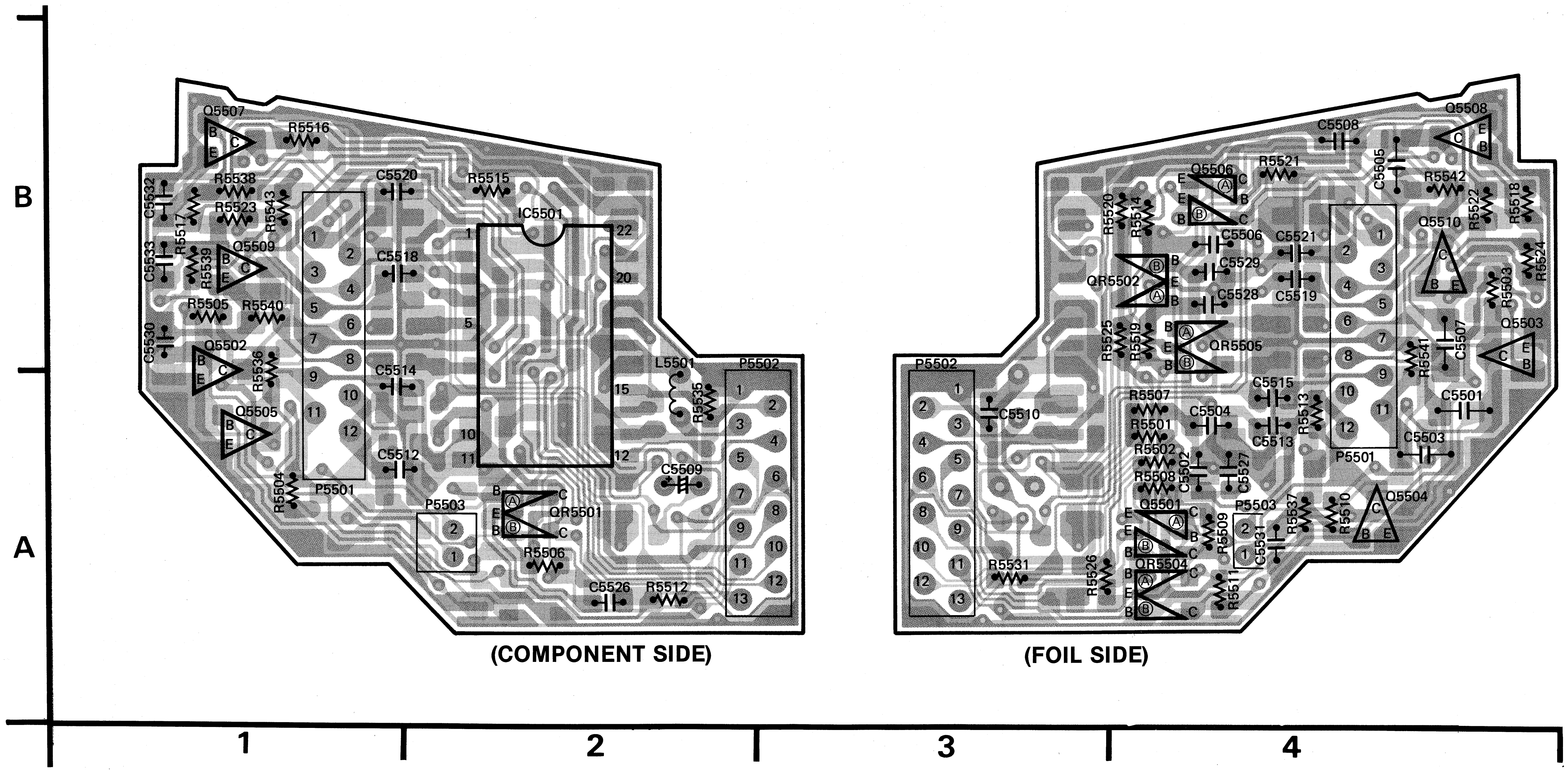
3-38. Hi-Fi AUDIO HEAD AMP C.B.A. (VEP05133B)


B
A
1
2
3
4
(COMPONENT SIDE)
(FOIL SIDE)
Q5507
R5516
R5538
R5523
R5543
C5532
R5517
C5533
R5539
Q5509
R5505
R5540
C5530
Q5502
R5536
Q5505
R5504
P5501
C5520
C5518
C5514
C5512
R5515
IC5501
P5503
QR5501
R5506
L5501
R5535
C5509
C5526
R5512
P5502
C5508
Q5508
Q5506
R5521
C5505
R5542
R5520
R5514
C5506
C5521
R5522
R5518
Q5510
R5524
C5529
QR5502
C5528
C5519
R5503
Q5503
C5507
R5525
R5519
QR5505
R5541
C5515
C5510
R5507
C5504
R5513
C5501
R5501
C5513
C5503
R5502
R5508
C5502
C5527
Q5501
P5503
R5537
R5510
Q5504
R5509
C5531
R5531
R5526
QR5504
R5511
B
C
E
Ⓐ
Ⓑ

Hi-Fi AUDIO HEAD AMP C.B.A.		
Transistor		
Q5501	A-4	Ⓕ
Q5502	B-1	Ⓒ
Q5503	B-4	Ⓕ
Q5504	A-4	Ⓕ
Q5505	A-1	Ⓒ
Q5506	B-4	Ⓕ
Q5507	B-1	Ⓒ
Q5508	B-4	Ⓕ
Q5509	B-1	Ⓒ
Q5510	B-4	Ⓕ
Transistor & Resistor		
QR5501	A-2	Ⓒ
QR5502	B-4	Ⓕ
QR5504	A-4	Ⓕ
QR5505	B-4	Ⓕ
Integrated Circuit		
IC5001	B-2	Ⓒ
Connector		
P5501	A-1	Ⓒ
P5501	A-4	Ⓕ
P5502	B-2	Ⓒ
P5502	B-3	Ⓕ
P5503	A-2	Ⓒ
P5503	A-4	Ⓕ

ADDRESS INFORMATION
Ⓒ... COMPONENT SIDE
Ⓕ... FOIL SIDE

3-38. Hi-Fi AUDIO HEAD AMP C.B.A. (VEP05133B)


B
A
1
2
3
4
Q5507
R5516
C5532
R5538
R5523
R5543
C5520
R5515
IC5501
C5533
R517
R5539
Q5509
C5518
R5505
R5540
C5530
Q5502
R5536
C5514
Q5505
L5501
R5535
P5502
C5512
R5504
P5501
QR5501
P5503
R5506
C5509
C5526
R5512
Q5508
C5508
C5505
R5521
Q5506
R5542
R5520
R5514
R5522
R5518
C5506
C5521
Q5510
QR5502
C5529
C5528
C5519
R5524
R5503
R5525
R5519
QR5505
C5507
Q5503
R5541
C5510
C5515
R5507
C5504
R5513
C5501
R5501
C5513
R5502
C5502
C5527
C5503
R5508
Q5501
P5503
R5537
R5510
Q5504
R5509
C5531
R5531
R5526
QR5504
R5511

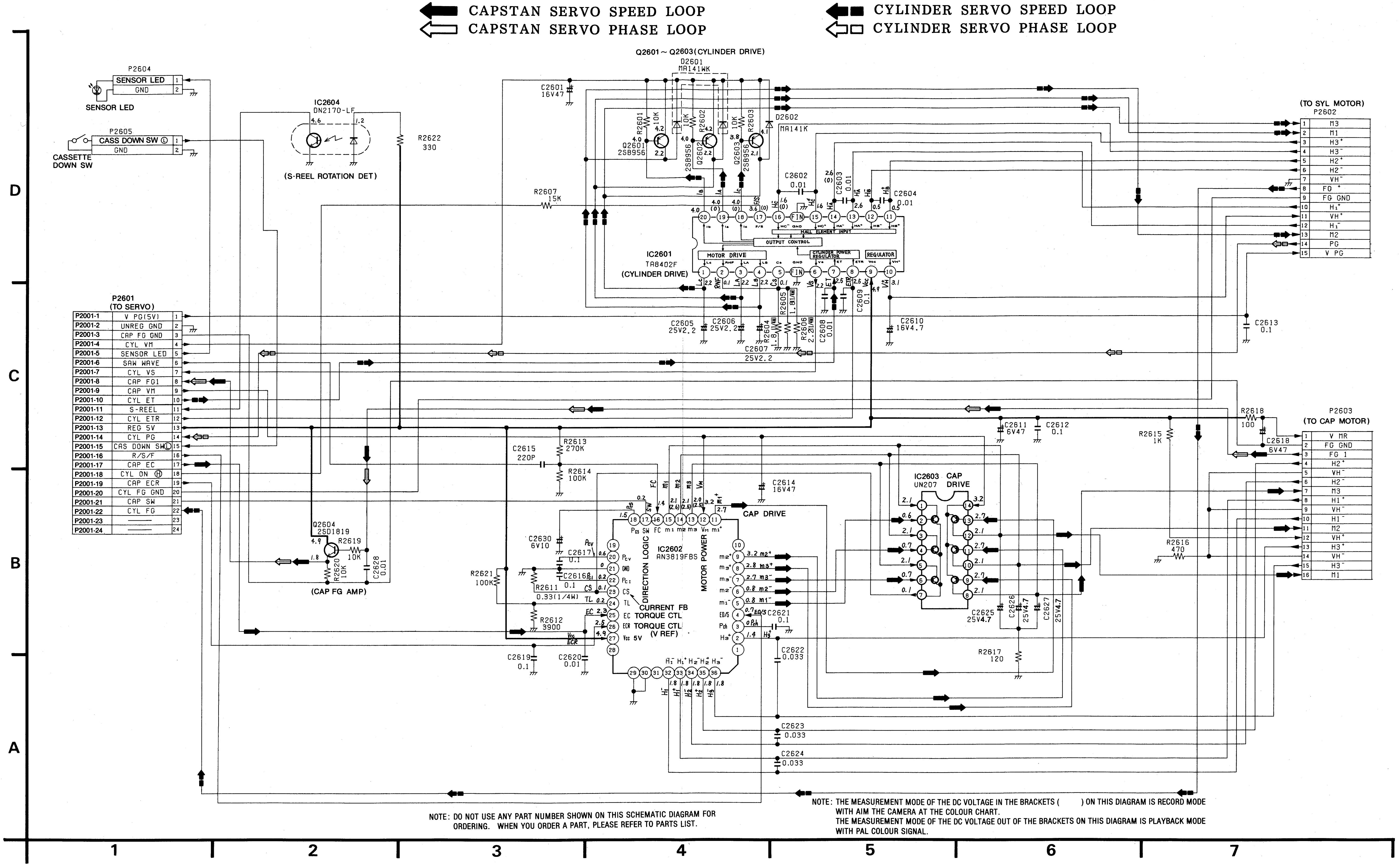
(COMPONENT SIDE)

(FOIL SIDE)

Hi-Fi AUDIO HEAD AMP C.B.A.		
Transistor		
Q5501	A-4	Ⓕ
Q5502	B-1	Ⓒ
Q5503	B-4	Ⓕ
Q5504	A-4	Ⓕ
Q5505	A-1	Ⓒ
Q5506	B-4	Ⓕ
Q5507	B-1	Ⓒ
Q5508	B-4	Ⓕ
Q5509	B-1	Ⓒ
Q5510	B-4	Ⓕ
Transistor & Resistor		
QR5501	A-2	Ⓒ
QR5502	B-4	Ⓕ
QR5504	A-4	Ⓕ
QR5505	B-4	Ⓕ
Integrated Circuit		
IC5001	B-2	Ⓒ
Connector		
P5501	A-1	Ⓒ
P5501	A-4	Ⓕ
P5502	B-2	Ⓒ
P5502	B-3	Ⓕ
P5503	A-2	Ⓒ
P5503	A-4	Ⓕ

ADDRESS INFORMATION
Ⓒ... COMPONENT SIDE
Ⓕ... FOIL SIDE

3-39. DRIVE SCHEMATIC DIAGRAM


CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP
Q2601 ~ Q2603(CYLINDER DRIVE)
D2601 MA141WK
D2602 MA141K
Q2601 2SB956
Q2602 2SB956
Q2603 2SB956
R2601 10K
R2602 10K
R2603 10K
C2601 16V47
C2602 0.01
C2603 0.01
C2604 0.01
R2607 15K
IC2601 TA8402F (CYLINDER DRIVE)
HALL ELEMENT INPUT
OUTPUT CONTROL
MOTOR DRIVE
CYLINDER POWER REGULATOR
REGULATOR
C2605 25V2.2
C2606 25V2.2
C2607 25V2.2
R2604 1.8(1/4W)
R2605 1.8(1/4W)
R2606 2.2(1/4W)
C2608 0.01
C2609 0.1
C2610 16V4.7
C2613 0.1
P2604
SENSOR LED
GND
SENSOR LED
P2605
CASS DOWN SW Ⓛ
GND
CASSETTE DOWN SW
IC2604 DN2170-LF
(S-REEL ROTATION DET)
R2622 330
P2601 (TO SERVO)
P2001-1 V PG(5V) 1
P2001-2 UNREG GND 2
P2001-3 CAP FG GND 3
P2001-4 CYL VM 4
P2001-5 SENSOR LED 5
P2001-6 SAW WAVE 6
P2001-7 CYL VS 7
P2001-8 CAP FG1 8
P2001-9 CAP VM 9
P2001-10 CYL ET 10
P2001-11 S-REEL 11
P2001-12 CYL ETR 12
P2001-13 REG 5V 13
P2001-14 CYL PG 14
P2001-15 CAS DOWN SWⓁ 15
P2001-16 R/S/F 16
P2001-17 CAP EC 17
P2001-18 CYL ON Ⓗ 18
P2001-19 CAP ECR 19
P2001-20 CYL FG GND 20
P2001-21 CAP SW 21
P2001-22 CYL FG 22
P2001-23 —— 23
P2001-24 —— 24
(TO SYL MOTOR) P2602
1 M3
2 M1
3 H3+
4 H3-
5 H2+
6 H2-
7 VH-
8 FG+
9 FG GND
10 H1+
11 VH+
12 H1-
13 M2
14 PG
15 V PG
P2603 (TO CAP MOTOR)
1 V MR
2 FG GND
3 FG 1
4 H2+
5 VH-
6 H2-
7 M3
8 H1+
9 VH-
10 H1-
11 M2
12 VH+
13 H3+
14 VH-
15 H3-
16 M1
R2618 100
C2618 6V47
C2611 6V47
C2612 0.1
R2615 1K
R2616 470
R2617 120
C2615 220P
R2613 270K
R2614 100K
Q2604 2SD1819
R2619 10K
R2620 10K
C2628 0.01
(CAP FG AMP)
R2621 100K
C2630 6V10
C2617 0.1
C2616 0.1
R2611 0.33(1/4W)
R2612 3900
C2619 0.1
C2620 0.01
C2614 16V47
IC2602 AN3819FBS
DIRECTION LOGIC
MOTOR POWER
CURRENT FB
TORQUE CTL
TORQUE CTL (V REF)
CAP DRIVE
C2621 0.1
C2622 0.033
C2623 0.033
C2624 0.033
IC2603 CAP UN207 DRIVE
C2625 25V4.7
C2626 25V4.7
C2627 25V4.7
D
C
B
A
1
2
3
4
5
6
7

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

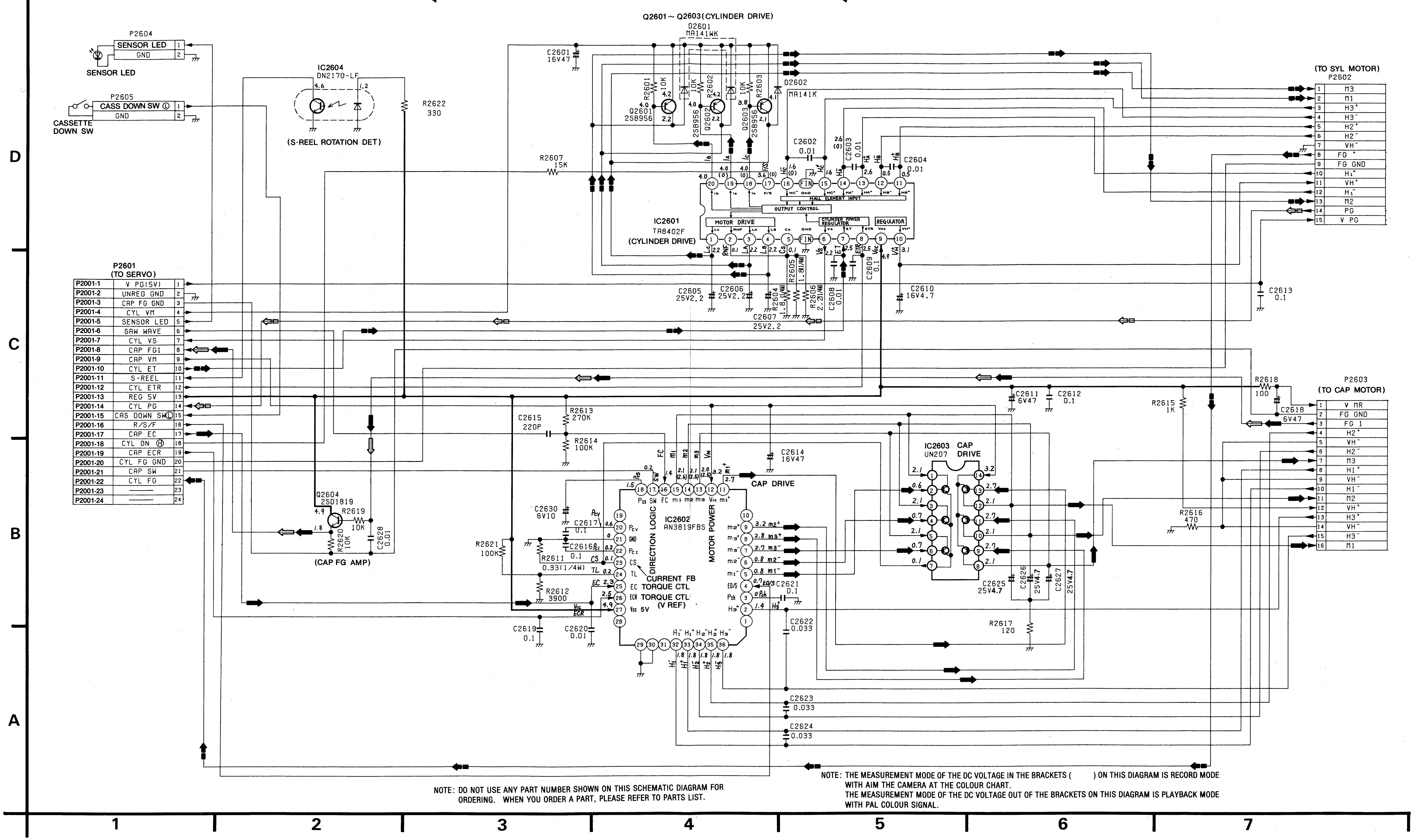
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

Back Page:
Hi-Fi AUDIO HEAD AMP Section

3-39. DRIVE SCHEMATIC DIAGRAM

CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP

CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP

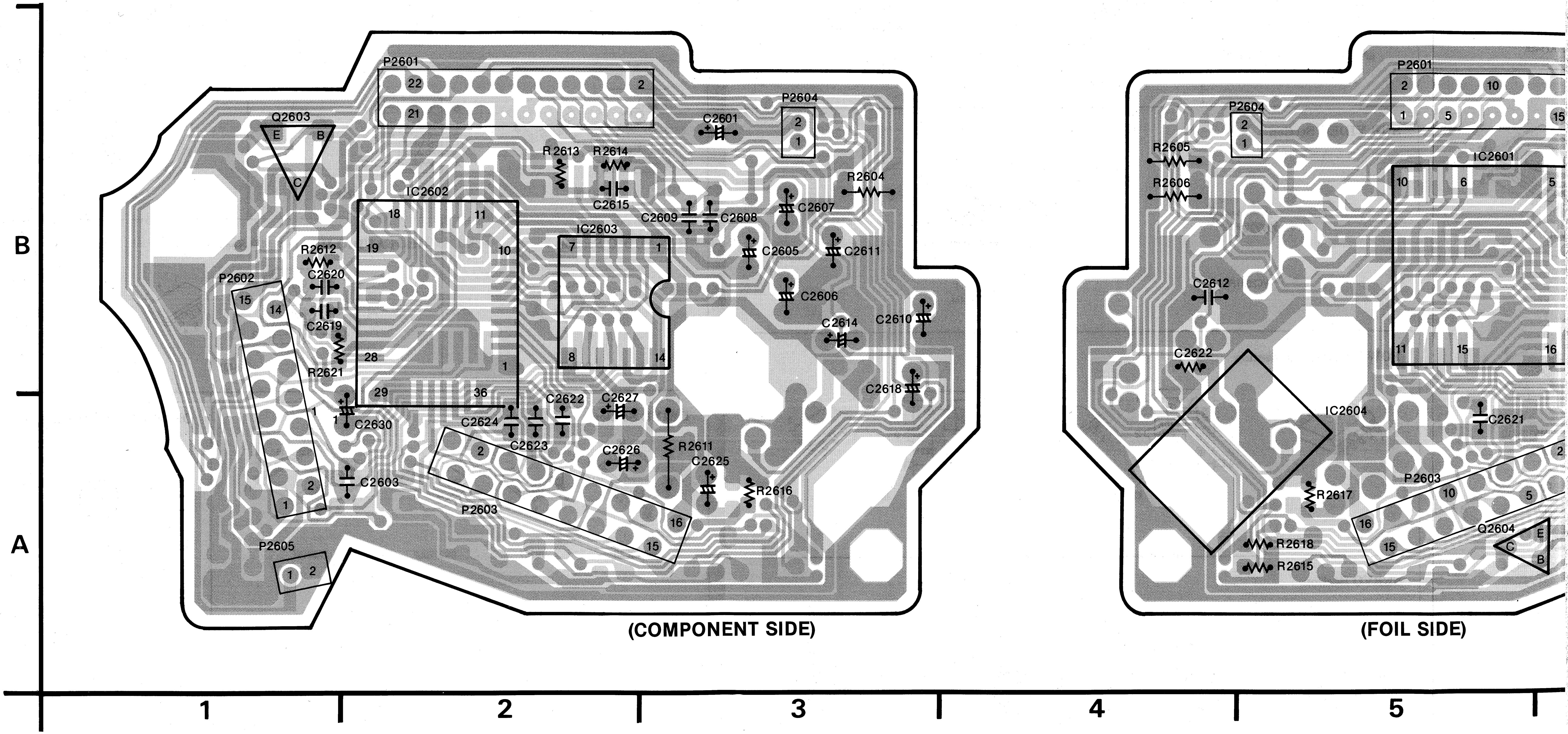

Q2601 ~ Q2603 (CYLINDER DRIVE)
P2604
SENSOR LED
GND
SENSOR LED
P2605
CASS DOWN SW Ⓛ
GND
CASSETTE DOWN SW
IC2604
DN2170-LF
(S-REEL ROTATION DET)
R2622 330
R2607 15K
C2601 16V47
D2601 MA141WK
R2601 10K
R2602 10K
R2603 10K
Q2601 2SB956
Q2602 2SB956
Q2603 2SB956
D2602 MA141K
C2602 0.01
C2603 0.01
C2604 0.01
IC2601
TA8402F
(CYLINDER DRIVE)
HALL ELEMENT INPUT
OUTPUT CONTROL
MOTOR DRIVE
CYLINDER POWER REGULATOR
REGULATOR
C2605 25V2.2
C2606 25V2.2
R2604 1.8(1/4W)
R2605 1.8(1/4W)
R2606 2.2(1/4W)
C2607 25V2.2
C2608 0.01
C2609 0.1
C2610 16V4.7
C2613 0.1
(TO SYL MOTOR)
P2602
1 M3
2 M1
3 H3+
4 H3-
5 H2+
6 H2-
7 VH-
8 FG +
9 FG GND
10 H1+
11 VH+
12 H1-
13 M2
14 PG
15 V PG
P2601
(TO SERVO)
P2001-1 V PG(5V) 1
P2001-2 UNREG GND 2
P2001-3 CAP FG GND 3
P2001-4 CYL VM 4
P2001-5 SENSOR LED 5
P2001-6 SAW WAVE 6
P2001-7 CYL VS 7
P2001-8 CAP FG1 8
P2001-9 CAP VM 9
P2001-10 CYL ET 10
P2001-11 S-REEL 11
P2001-12 CYL ETR 12
P2001-13 REG 5V 13
P2001-14 CYL PG 14
P2001-15 CAS DOWN SWⓁ 15
P2001-16 R/S/F 16
P2001-17 CAP EC 17
P2001-18 CYL ON Ⓗ 18
P2001-19 CAP ECR 19
P2001-20 CYL FG GND 20
P2001-21 CAP SW 21
P2001-22 CYL FG 22
P2001-23 —— 23
P2001-24 —— 24
C2615 220P
R2613 270K
R2614 100K
C2614 16V47
CAP DRIVE
Q2604 2SD1819
R2619 10K
R2620 10K
C2628 0.01
(CAP FG AMP)
C2630 6V10
C2617 0.1
C2616 0.1
R2611 0.33(1/4W)
R2612 3900
R2621 100K
C2619 0.1
C2620 0.01
IC2602
AN3819FBS
DIRECTION LOGIC
MOTOR POWER
CURRENT FB
TORQUE CTL
TORQUE CTL
(V REF)
C2621 0.1
C2622 0.033
C2623 0.033
C2624 0.033
C2611 6V47
C2612 0.1
R2618 100
C2618 6V47
R2615 1K
IC2603 CAP
UN207 DRIVE
C2625 25V4.7
C2626 25V4.7
C2627 25V4.7
R2617 120
R2616 470
P2603
(TO CAP MOTOR)
1 V MR
2 FG GND
3 FG 1
4 H2+
5 VH-
6 H2-
7 M3
8 H1+
9 VH-
10 H1-
11 M2
12 VH+
13 H3+
14 VH-
15 H3-
16 M1
D
C
B
A
1
2
3
4
5
6
7

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

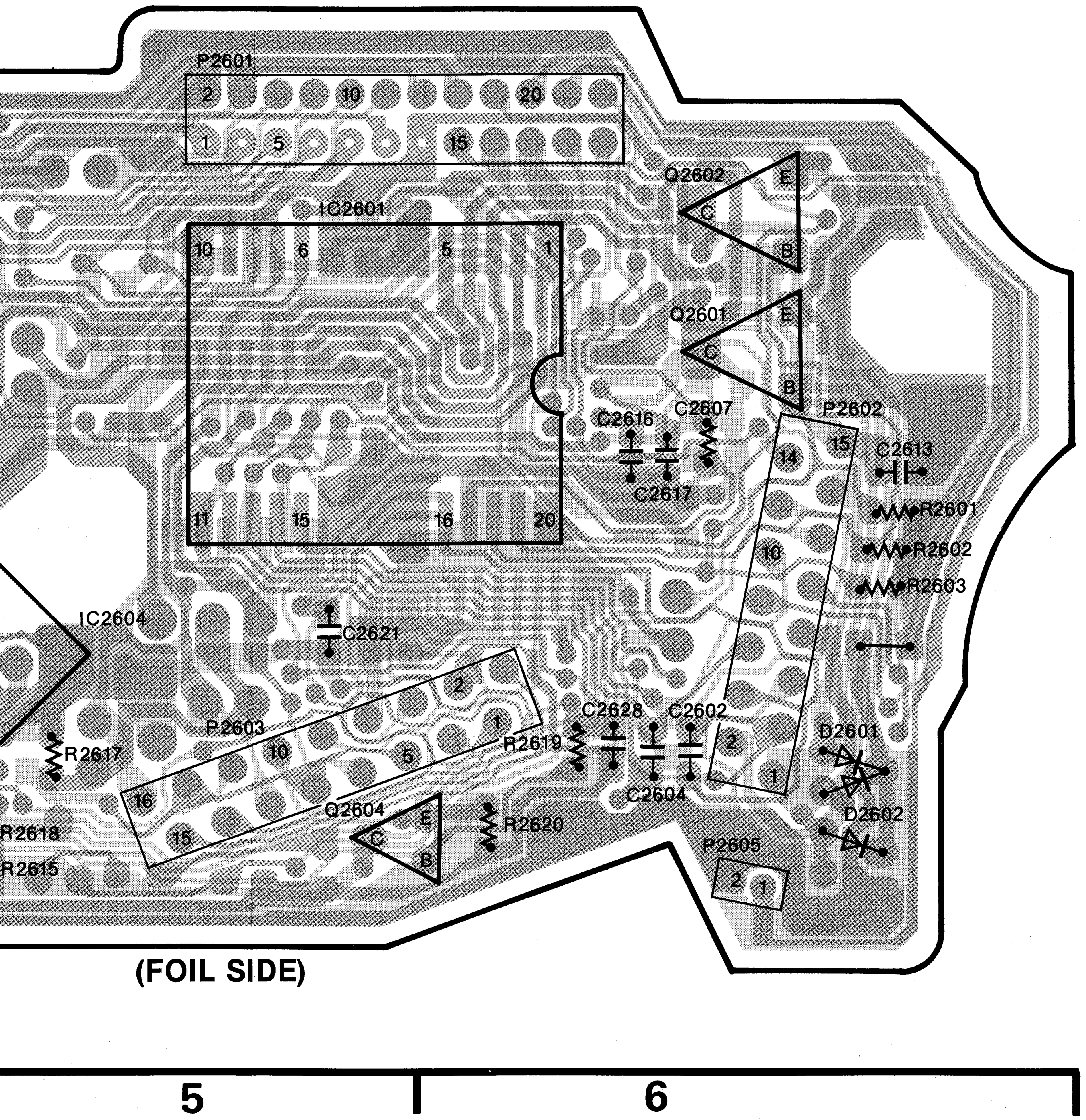
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

Back Page:
Hi-Fi AUDIO HEAD AMP Section

3-40. DRIVE C.B.A. (VEP02318A)



P2601
22
21
2
Q2603
E
B
C
P2604
2
1
C2601
R2613
R2614
C2615
R2604
IC2602
18
11
19
10
28
1
29
36
C2609
C2608
C2607
IC2603
7
1
8
14
C2605
C2611
R2612
C2620
C2619
R2621
P2602
15
14
2
1
C2606
C2614
C2610
C2618
C2630
C2622
C2627
C2624
C2623
C2626
R2611
C2625
R2616
C2603
P2603
2
16
15
P2605
1
2
(COMPONENT SIDE)
P2601
2
10
1
5
15
P2604
2
1
R2605
R2606
IC2601
10
6
5
11
15
16
C2612
C2622
IC2604
C2621
R2617
P2603
10
5
16
15
Q2604
E
C
B
R2618
R2615
(FOIL SIDE)
B
A
1
2
3
4
5

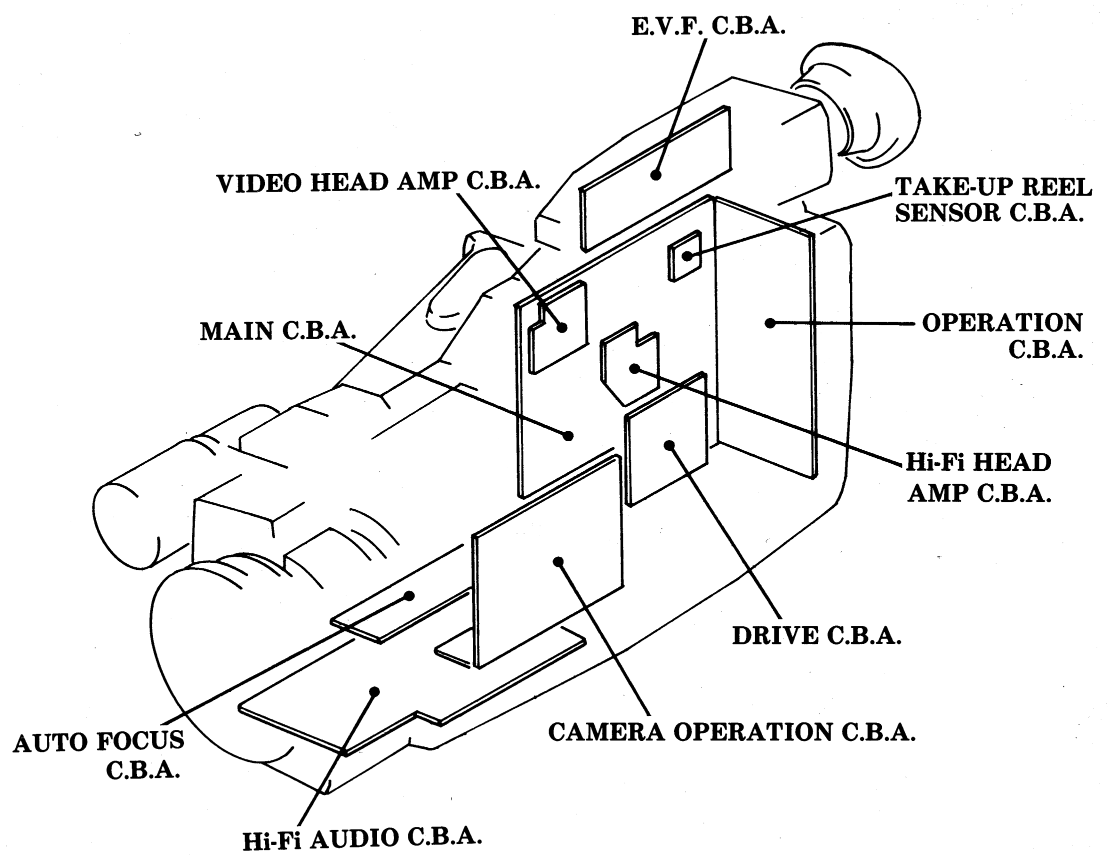

P2601
2
10
20
1
5
15
Q2602
E
C
B
IC2601
10
6
5
1
Q2601
E
C
B
C2616
C2607
P2602
15
14
C2613
C2617
11
15
16
20
R2601
R2602
10
R2603
IC2604
C2621
2
1
P2603
R2619
C2628
C2602
2
D2601
R2617
10
5
16
Q2604
E
C
B
R2620
C2604
1
D2602
R2618
15
P2605
R2615
2
1
5
6

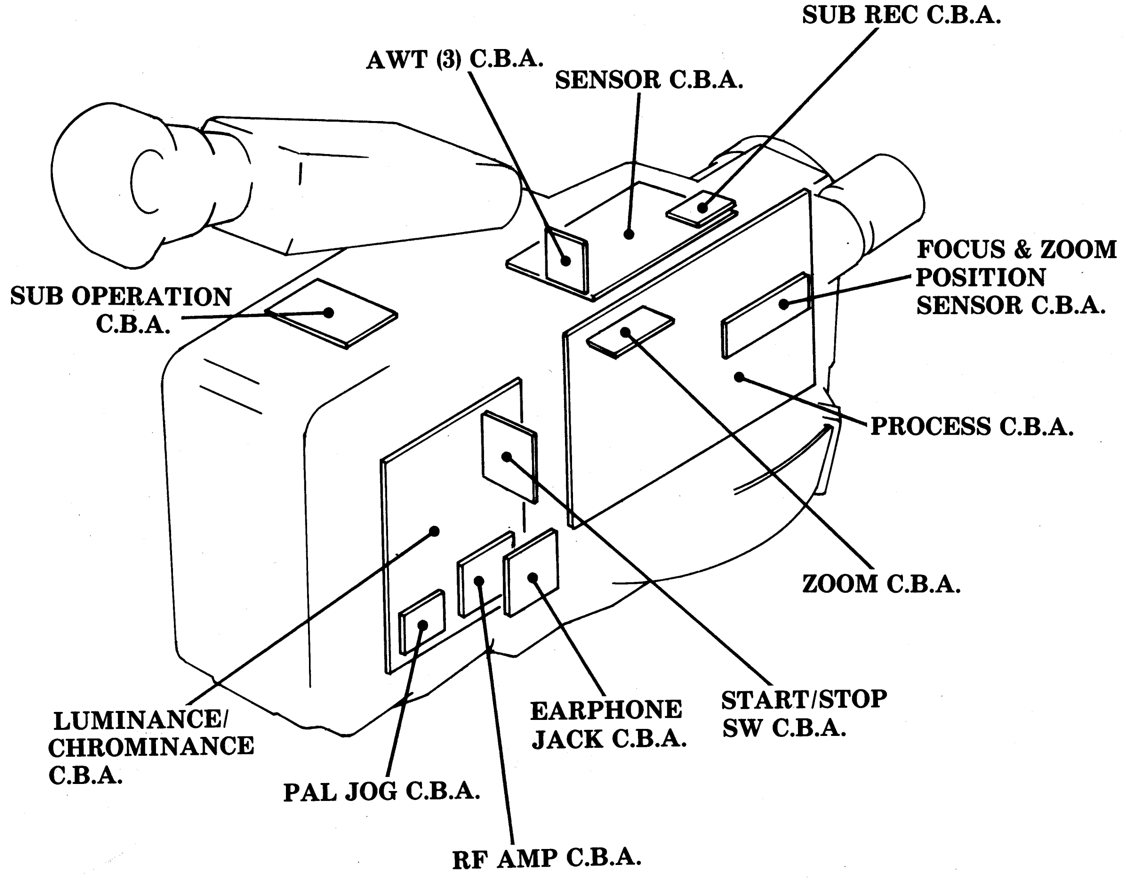
(FOIL SIDE)

DRIVE C.B.A.	
Transistor	
Q2601	B-6 Ⓕ
Q2602	B-6 Ⓕ
Q2603	B-1 Ⓒ
Q2604	A-5 Ⓕ
Integrated Circuit	
IC2601	B-5 Ⓕ
IC2602	B-2 Ⓒ
IC2603	B-2 Ⓒ
IC2604	A-5 Ⓕ
Connector	
P2601	B-2 Ⓒ
P2601	B-5 Ⓕ
P2602	B-1 Ⓒ
P2602	B-6 Ⓕ
P2603	A-2 Ⓒ
P2603	A-5 Ⓕ
P2604	B-3 Ⓒ
P2604	B-5 Ⓕ
P2605	A-1 Ⓒ
P2605	A-6 Ⓕ

ADDRESS INFORMATION
Ⓒ ... COMPONENT SIDE
Ⓕ ... FOIL SIDE

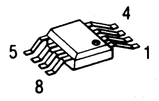
3-41. CIRCUIT BOARD LAYOUT


E.V.F. C.B.A.
VIDEO HEAD AMP C.B.A.
TAKE-UP REEL SENSOR C.B.A.
MAIN C.B.A.
OPERATION C.B.A.
Hi-Fi HEAD AMP C.B.A.
DRIVE C.B.A.
AUTO FOCUS C.B.A.
CAMERA OPERATION C.B.A.
Hi-Fi AUDIO C.B.A.

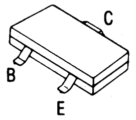

SUB REC C.B.A.
AWT (3) C.B.A.
SENSOR C.B.A.
FOCUS & ZOOM POSITION SENSOR C.B.A.
SUB OPERATION C.B.A.
PROCESS C.B.A.
ZOOM C.B.A.
LUMINANCE/ CHROMINANCE C.B.A.
EARPHONE JACK C.B.A.
START/STOP SW C.B.A.
PAL JOG C.B.A.
RF AMP C.B.A.

3-42. ICs & TRs INFORMATION

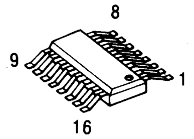
GENERAL CIRCUIT PARTS



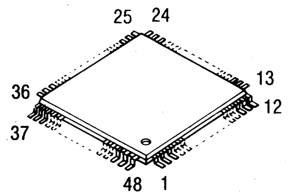
AN1358S
μPC358G2
μPC1513G
NJM4558MP
MSM6965-3MS
NJM3415M
MST001MS
MSM6989MS
LM2903M
BA7131F



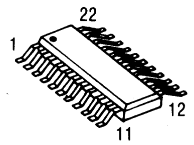
2SA1531	2SC3138
2SA812	2SC3930
2SA1255	2SC3931
2SA1532	2SC4176
2SA1610	2SD968A
2SB709	2SD1328
2SB710	2SD1819
2SB956	2SD1820
2SB970	2SD601
2SB970X	
2SB1218	
2SB1219	



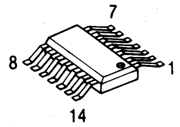
AN3823S
AN3824S
MN4052BS
μPD4094BG
AN2012S
TL1453CNS-L
μPD6142G101A


25 24
36
13
12
37
48 1

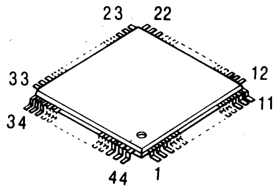
AN2154FAP
AN2254FAP
AN2584NFAP
AN3237FB
AN3972FB



AN3592S
AN3311S



AN1324NS
S3500A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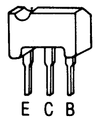
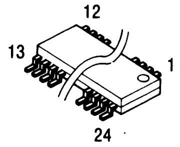
33
12
11
34
44 1

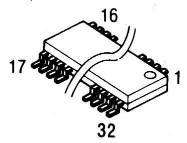
MN5107
MN5109
MN67461VDTF



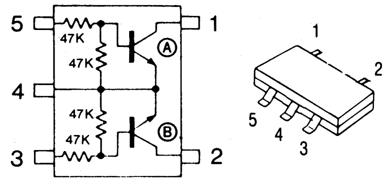
2SD1526VT



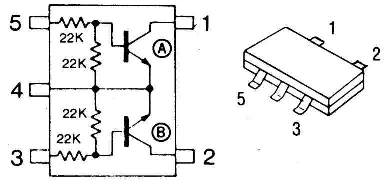
AN2510S
μPC2300G
AN3799S



AN3932S
M52054FP


5
4
3
1
2
47K
47K
47K
47K
Ⓐ
Ⓑ
1
2
5
4
3

XN1113


5
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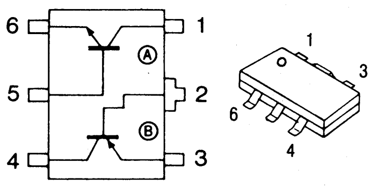
22K
22K
22K
22K
Ⓐ
Ⓑ
1
2
5
3

XN1212
FMG1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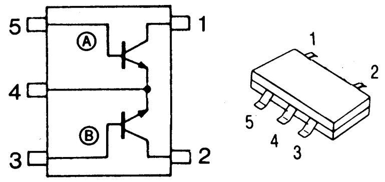
Ⓐ
Ⓑ
1
3
6
4

XN4601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4
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Ⓐ
Ⓑ
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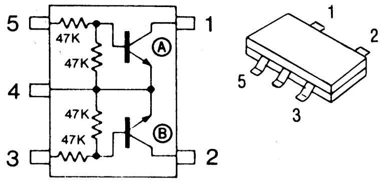
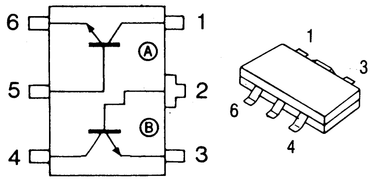
5
4
3

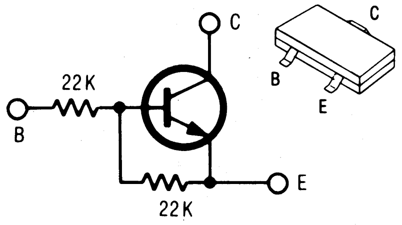
XN1501
FMW1


5
4
3
1
2
47K
47K
47K
47K
Ⓐ
Ⓑ
1
2
5
3

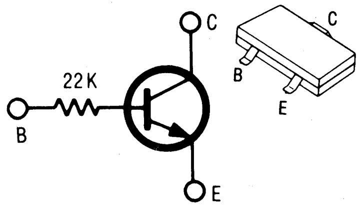
XN1213
GMG2


6
5
4
1
2
3
Ⓐ
Ⓑ
1
3
6
4

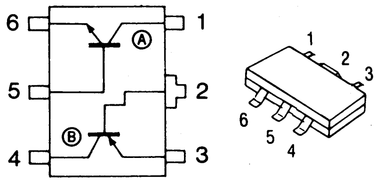
XN4501


C
22K
B
E
22K
C
B
E

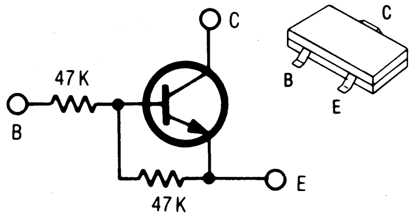
UN5212
GA1F4M



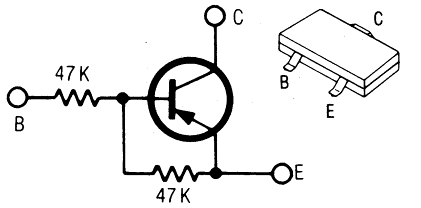
UN5217
GA1F4Z


6
5
4
1
2
3
Ⓐ
Ⓑ
1
2
3
6
5
4

XN4608
XN4608X


C
47K
B
E
47K
C
B
E

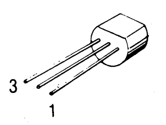
UN5213
GA1L4M


C
47K
B
E
47K
C
B
E

UN5113
GN1L4M

Back Page:
DRIVE,
CIRCUIT BOARD LAYOUT Section

AUTO FOCUS



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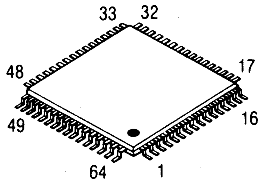
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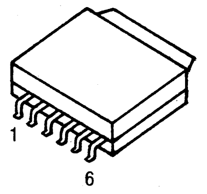
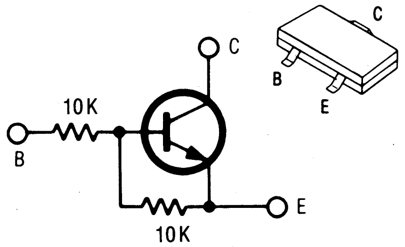
17
49
16
64 1

MN15867VNY

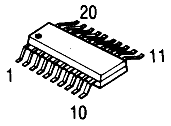


AN6663SP


C
10K
B
E
10K
C
B
E

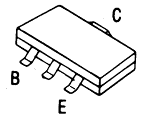
UN2211
DTA114EK

SENSOR

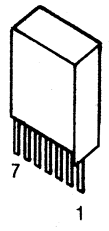


μPD6147G

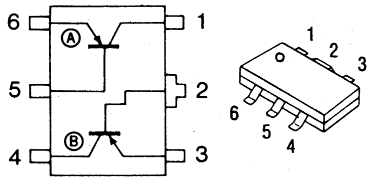
PROCESS



2SD874

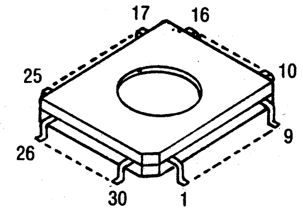


VCR0250


6
5
4
1
2
3
Ⓐ
Ⓑ
1
2
3
6
5
4

XN4401

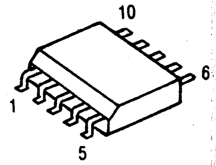
AWT (3)


17
16
25
10
26
9
30
1

M51096AU

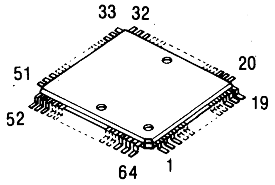
SUB VIDEO Secti

POWER SUPPLY

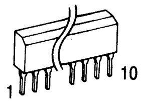


UN215

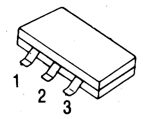
SYSTEM CONTROL Section


33 32
20
51
19
52
64 1

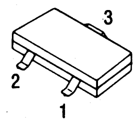
μPD75108G784



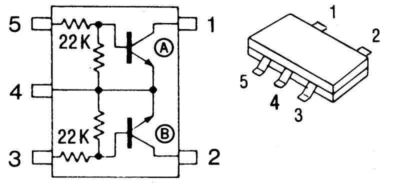
M54543ASL



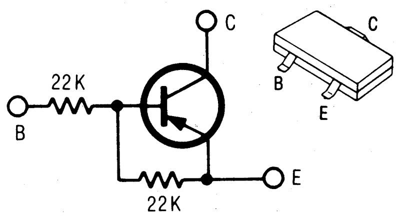
S81250HGRD



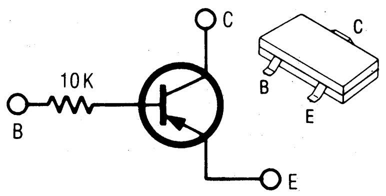
MN12821Q


5
4
3
1
2
22K
22K
Ⓐ
Ⓑ
1
2
5
4
3

XN1217

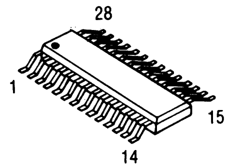

C
22K
B
E
22K
C
B
E

UN5211
GN1F4M

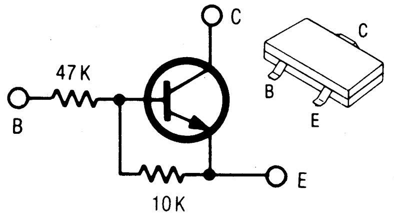


UN5115
GN1A4Z

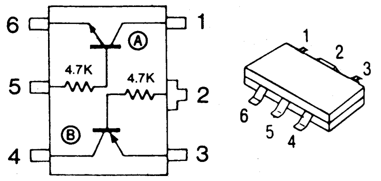
SERVO Section



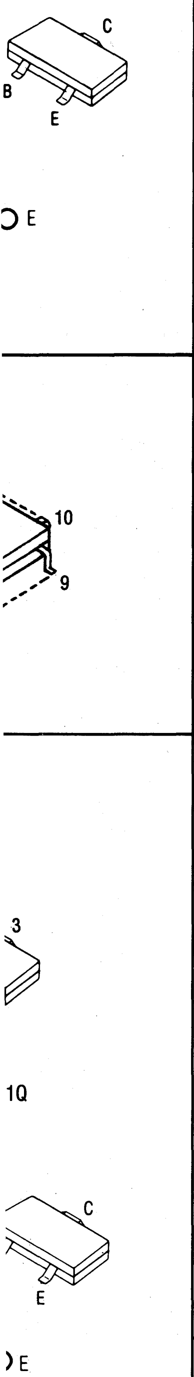
MN1551VYJS4
AN3798NS


C
47K
B
E
10K
C
B
E

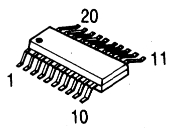
UN521E
GA1L4L


6
5
4
1
2
3
Ⓐ
Ⓑ
4.7K
4.7K
1
2
3
6
5
4

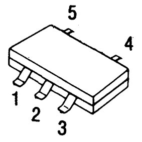
XN4316


C
B
E
E
10
9
3
1Q
C
E
E

SENSOR

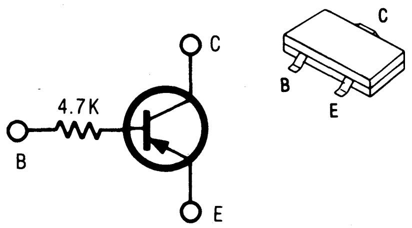


μPD6147G

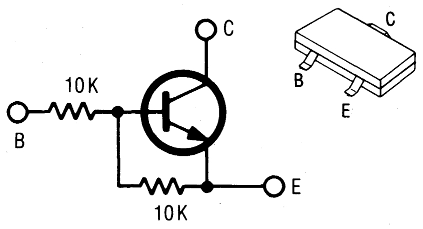


TC7SU04FT85R

AUDIO Section

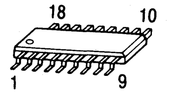


UN5116
GN1L3Z

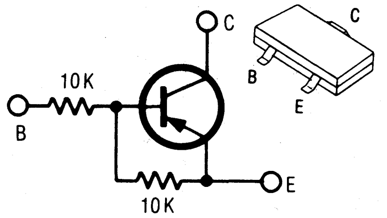

C
10K
B
10K
E
C
B
E

UN5211
GA1A4M

SUB VIDEO Section

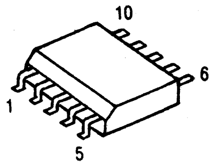


VC2031FP

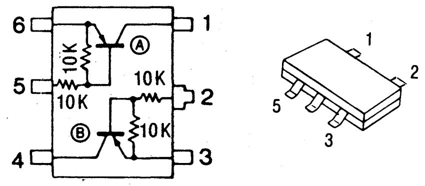

C
10K
B
10K
E
C
B
E

UN5111
GN1A4M

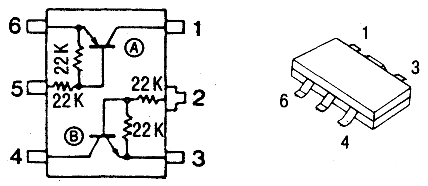
POWER SUPPLY Section



UN215

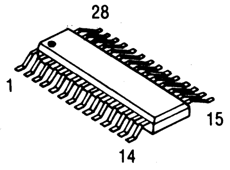

6
5
4
1
2
3
10K
10K
10K
10K
Ⓐ
Ⓑ
1
2
5
3

XN4111

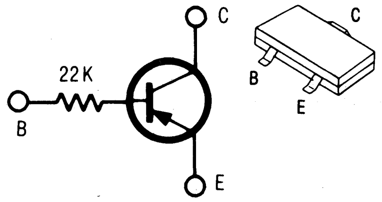

6
5
4
1
2
3
22K
22K
22K
22K
Ⓐ
Ⓑ
1
3
6
4

IMD2

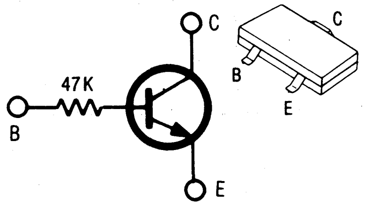
SERVO Section



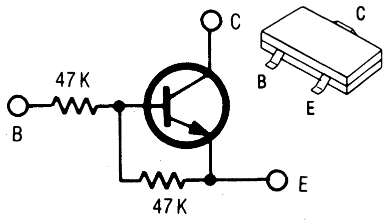
MN1551VYJS4
AN3798NS



UN5117
GN1F4Z

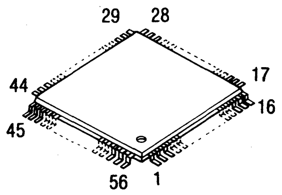


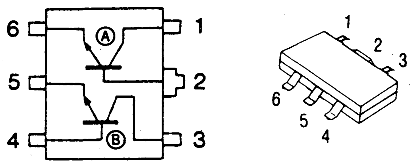
UN5210
GA1L4Z


C
47K
B
47K
E
C
B
E

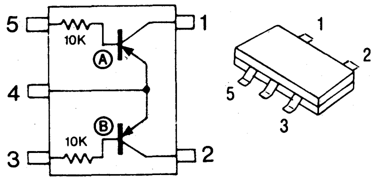
UN5213
GA1L4M

LUMINANCE & CHROMINANCE Section

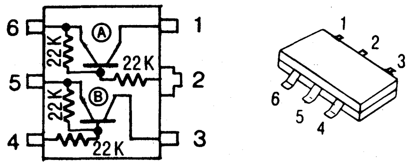

29
28
44
17
16
45
56
1


6
5
4
1
2
3
Ⓐ
Ⓑ
1
2
3
6
5
4

XN6401

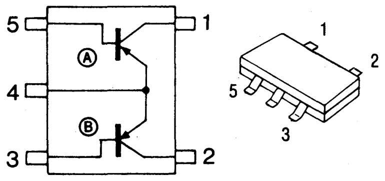

5
4
3
1
2
10K
10K
Ⓐ
Ⓑ
10K
10K
1
2
5
3

XN1115

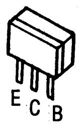

6
5
4
1
2
3
22K
22K
22K
22K
Ⓐ
Ⓑ
1
2
3
6
5
4

XN6212

VIDEO HEAD AMP Section

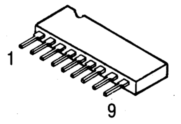


XN1401
FMS1



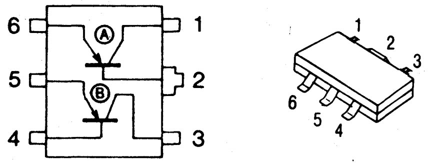
2SA1175

H-F- AUDIO Section



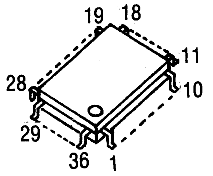
BA3308

Hi-Fi AUDIO HEAD AMP Section

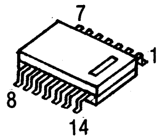

6
5
4
1
2
3
Ⓐ
Ⓑ
1
2
3
6
5
4

XN6401

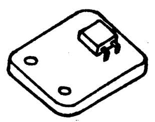
DRIVE Section


19
18
11
10
28
29
36
1

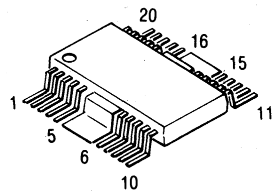
AN3819FBS



UN207

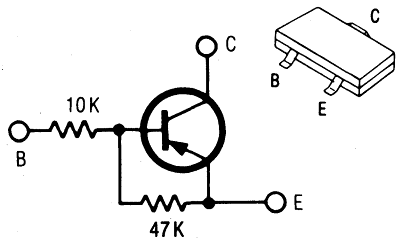


ON2170LF


20
16
15
1
11
5
6
10

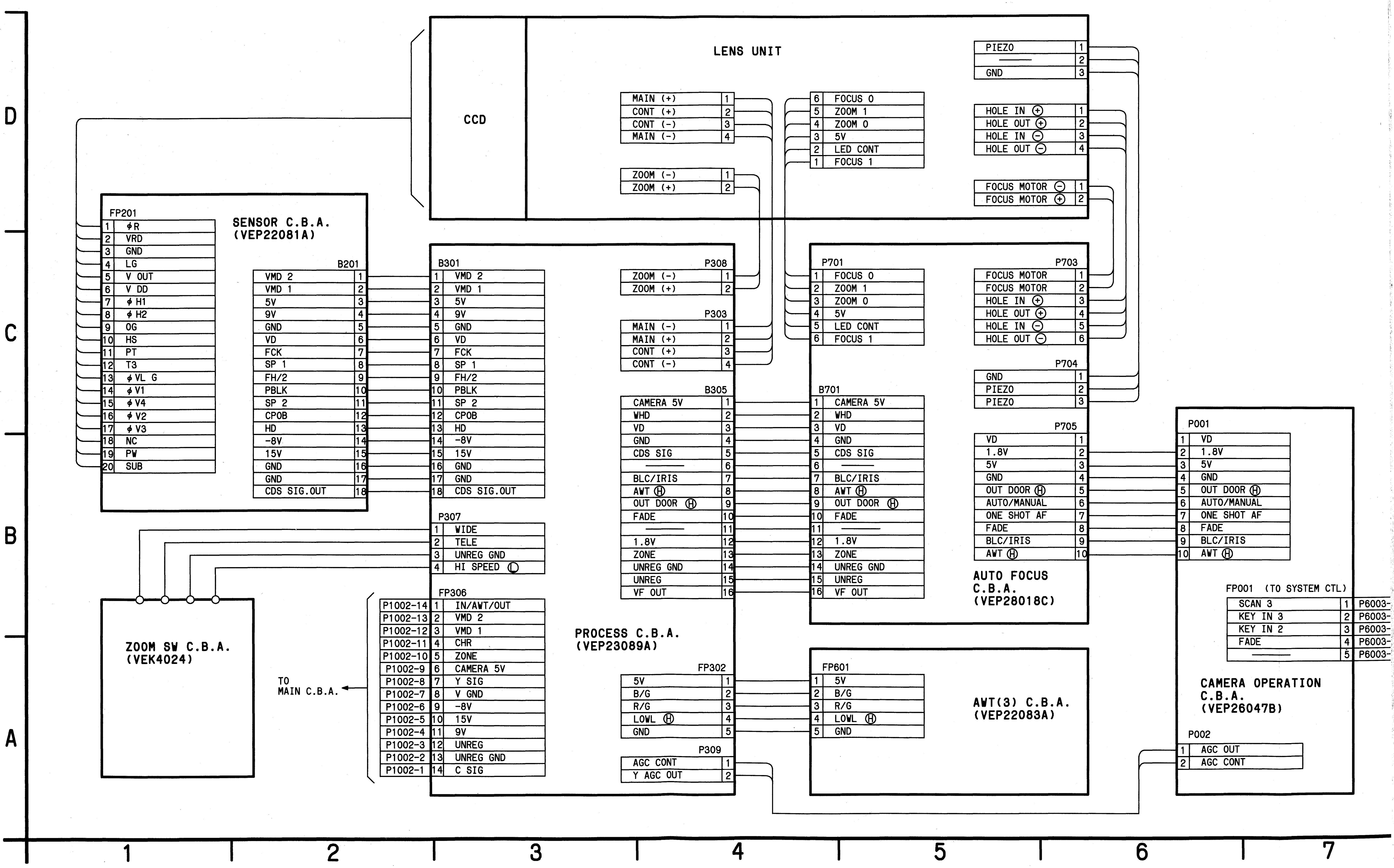
TA8402F

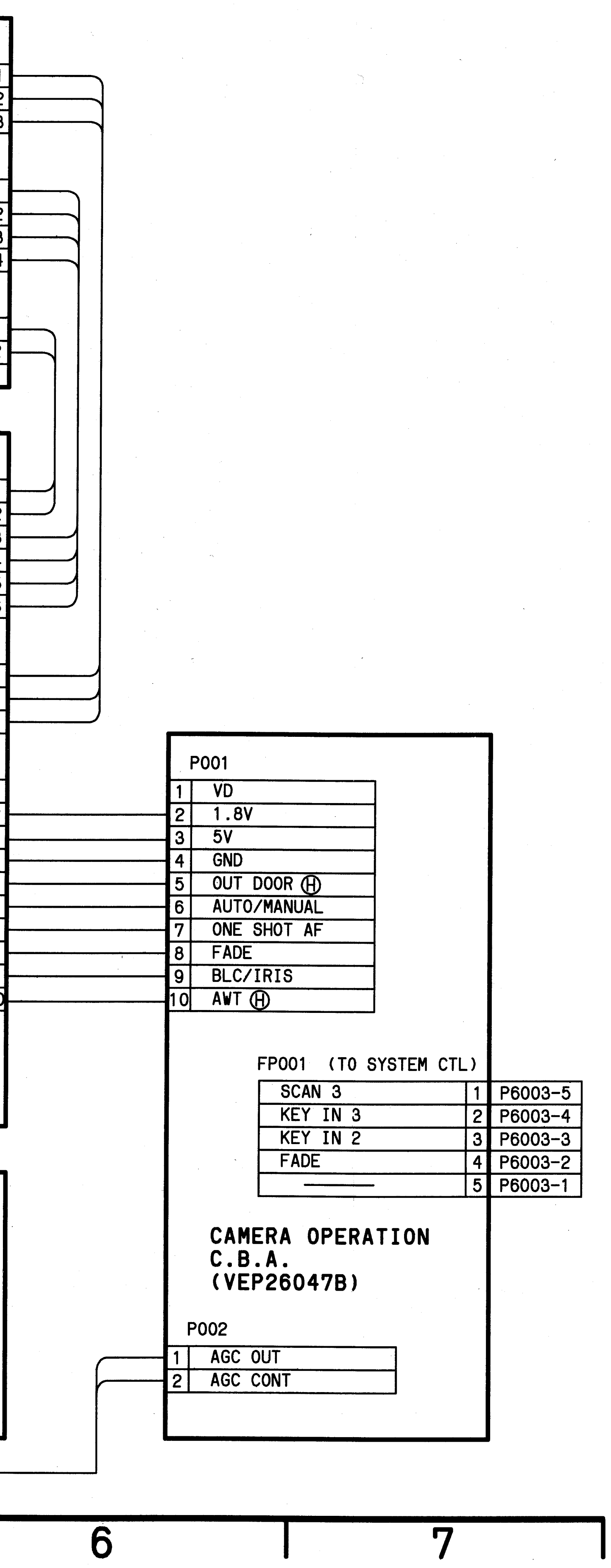
OPERATION Section


C
10K
B
47K
E
C
B
E

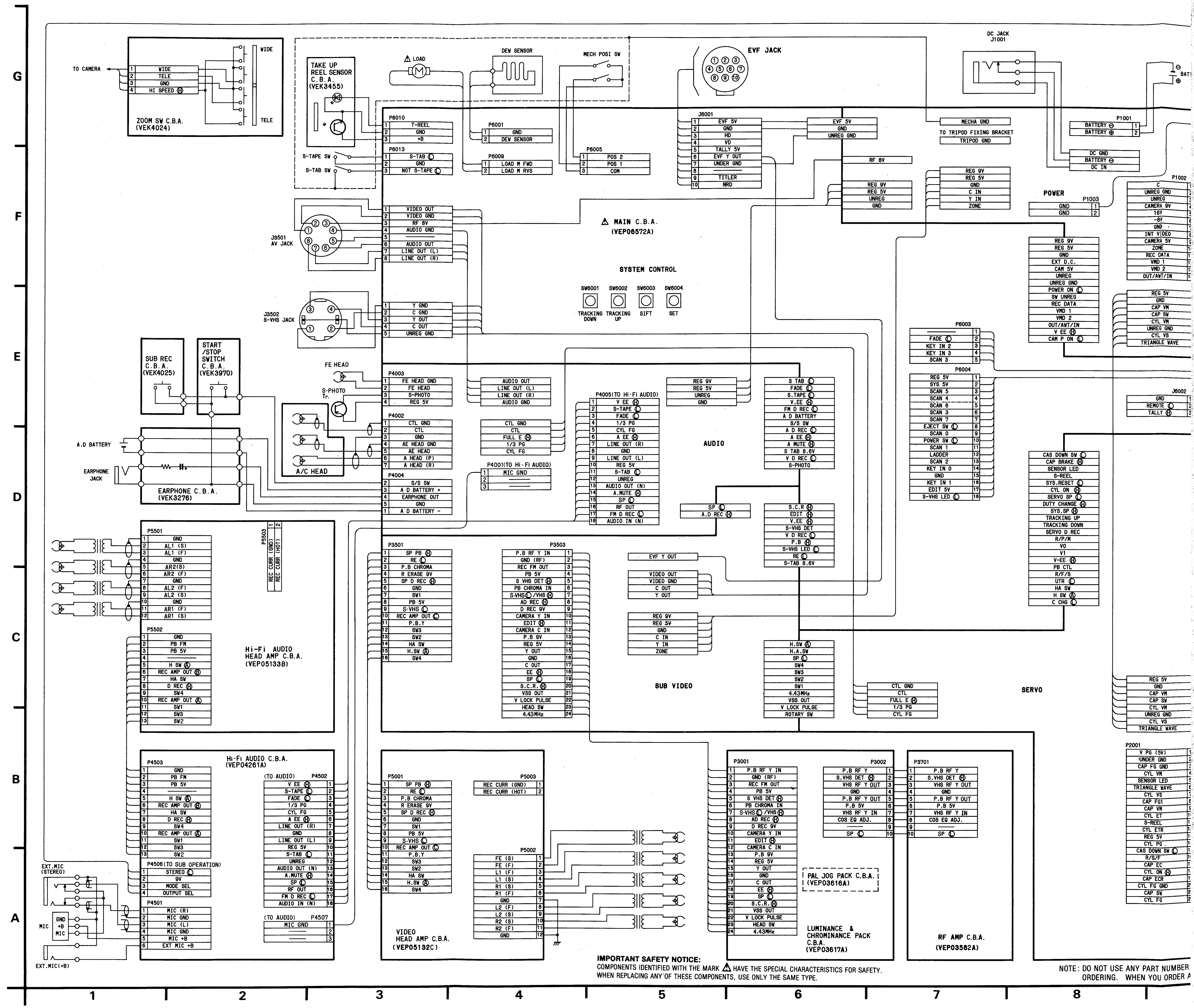
UN2114
DTA114YK

3-43. CAMERA INTERCONNECTION SCHEMATIC DIAGRAM


LENS UNIT
CCD
MAIN (+) 1
CONT (+) 2
CONT (-) 3
MAIN (-) 4
ZOOM (-) 1
ZOOM (+) 2
6 FOCUS 0
5 ZOOM 1
4 ZOOM 0
3 5V
2 LED CONT
1 FOCUS 1
PIEZO 1
——— 2
GND 3
HOLE IN ⊕ 1
HOLE OUT ⊕ 2
HOLE IN ⊖ 3
HOLE OUT ⊖ 4
FOCUS MOTOR ⊖ 1
FOCUS MOTOR ⊕ 2
SENSOR C.B.A. (VEP22081A)
FP201
1 φR
2 VRD
3 GND
4 LG
5 V OUT
6 V DD
7 φH1
8 φH2
9 OG
10 HS
11 PT
12 T3
13 φVL G
14 φV1
15 φV4
16 φV2
17 φV3
18 NC
19 PW
20 SUB
B201
VMD 2 1
VMD 1 2
5V 3
9V 4
GND 5
VD 6
FCK 7
SP 1 8
FH/2 9
PBLK 10
SP 2 11
CPOB 12
HD 13
-8V 14
15V 15
GND 16
GND 17
CDS SIG.OUT 18
B301
1 VMD 2
2 VMD 1
3 5V
4 9V
5 GND
6 VD
7 FCK
8 SP 1
9 FH/2
10 PBLK
11 SP 2
12 CPOB
13 HD
14 -8V
15 15V
16 GND
17 GND
18 CDS SIG.OUT
P307
1 WIDE
2 TELE
3 UNREG GND
4 HI SPEED Ⓛ
FP306
P1002-14 1 IN/AWT/OUT
P1002-13 2 VMD 2
P1002-12 3 VMD 1
P1002-11 4 CHR
P1002-10 5 ZONE
P1002-9 6 CAMERA 5V
P1002-8 7 Y SIG
P1002-7 8 V GND
P1002-6 9 -8V
P1002-5 10 15V
P1002-4 11 9V
P1002-3 12 UNREG
P1002-2 13 UNREG GND
P1002-1 14 C SIG
TO MAIN C.B.A.
ZOOM SW C.B.A. (VEK4024)
P308
ZOOM (-) 1
ZOOM (+) 2
P303
MAIN (-) 1
MAIN (+) 2
CONT (+) 3
CONT (-) 4
B305
CAMERA 5V 1
WHD 2
VD 3
GND 4
CDS SIG 5
——— 6
BLC/IRIS 7
AWT Ⓗ 8
OUT DOOR Ⓗ 9
FADE 10
——— 11
1.8V 12
ZONE 13
UNREG GND 14
UNREG 15
VF OUT 16
PROCESS C.B.A. (VEP23089A)
FP302
5V 1
B/G 2
R/G 3
LOWL Ⓗ 4
GND 5
P309
AGC CONT 1
Y AGC OUT 2
P701
1 FOCUS 0
2 ZOOM 1
3 ZOOM 0
4 5V
5 LED CONT
6 FOCUS 1
B701
1 CAMERA 5V
2 WHD
3 VD
4 GND
5 CDS SIG
6 ———
7 BLC/IRIS
8 AWT Ⓗ
9 OUT DOOR Ⓗ
10 FADE
11 ———
12 1.8V
13 ZONE
14 UNREG GND
15 UNREG
16 VF OUT
P703
FOCUS MOTOR 1
FOCUS MOTOR 2
HOLE IN ⊕ 3
HOLE OUT ⊕ 4
HOLE IN ⊖ 5
HOLE OUT ⊖ 6
P704
GND 1
PIEZO 2
PIEZO 3
P705
VD 1
1.8V 2
5V 3
GND 4
OUT DOOR Ⓗ 5
AUTO/MANUAL 6
ONE SHOT AF 7
FADE 8
BLC/IRIS 9
AWT Ⓗ 10
AUTO FOCUS C.B.A. (VEP28018C)
FP601
1 5V
2 B/G
3 R/G
4 LOWL Ⓗ
5 GND
AWT(3) C.B.A. (VEP22083A)
P001
1 VD
2 1.8V
3 5V
4 GND
5 OUT DOOR Ⓗ
6 AUTO/MANUAL
7 ONE SHOT AF
8 FADE
9 BLC/IRIS
10 AWT Ⓗ
FP001 (TO SYSTEM CTL)
SCAN 3 1 P6003-
KEY IN 3 2 P6003-
KEY IN 2 3 P6003-
FADE 4 P6003-
——— 5 P6003-
CAMERA OPERATION C.B.A. (VEP26047B)
P002
1 AGC OUT
2 AGC CONT
D
C
B
A
1
2
3
4
5
6
7


P001
1 VD
2 1.8V
3 5V
4 GND
5 OUT DOOR Ⓗ
6 AUTO/MANUAL
7 ONE SHOT AF
8 FADE
9 BLC/IRIS
10 AWT Ⓗ
FP001 (TO SYSTEM CTL)
SCAN 3 1 P6003-5
KEY IN 3 2 P6003-4
KEY IN 2 3 P6003-3
FADE 4 P6003-2
5 P6003-1
CAMERA OPERATION C.B.A. (VEP26047B)
P002
1 AGC OUT
2 AGC CONT
6
7

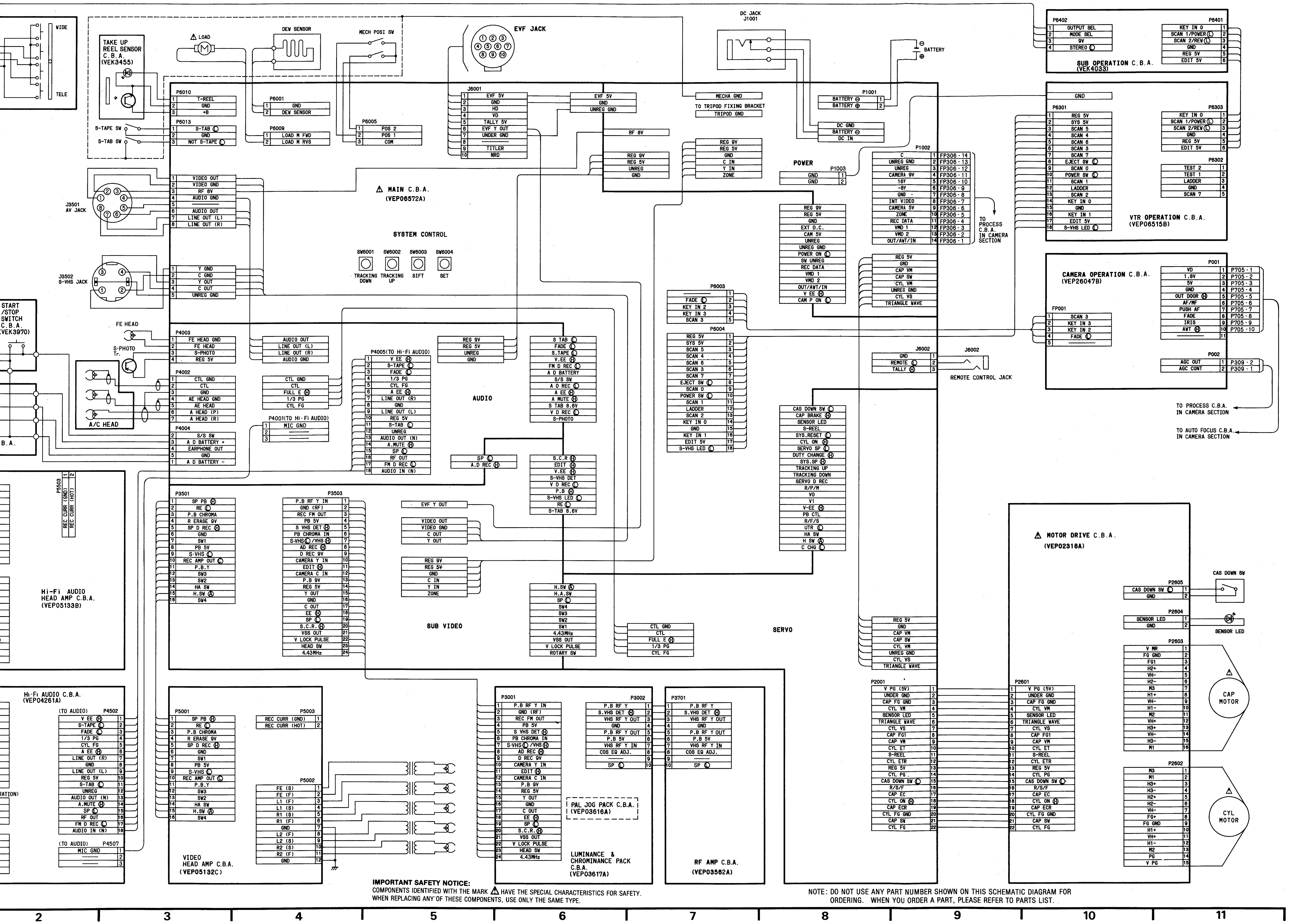
3-44. VTR INTERCONNECTION SCHEMATIC DIAGRAM


G
F
E
D
C
B
A
TO CAMERA
WIDE
TELE
GND
HI SPEED Ⓗ
ZOOM SW C.B.A. (VEK4024)
TAKE UP REEL SENSOR C.B.A. (VEK3455)
LOAD
DEW SENSOR
MECH POSI SW
EVF JACK
DC JACK J1001
BATT
S-TAPE SW
S-TAB SW
P6010
T-REEL
+B
P6013
S-TAB Ⓛ
NOT S-TAPE Ⓛ
P6001
DEW SENSOR
P6009
LOAD M FWD
LOAD M RVS
P6005
POS 2
POS 1
COM
J6001
EVF 5V
HD
VD
TALLY 5V
EVF Y OUT
UNDER GND
TITLER
NRD
UNREG GND
MECHA GND
TO TRIPOD FIXING BRACKET
TRIPOD GND
P1001
BATTERY ⊖
BATTERY ⊕
DC GND
DC IN
RF 8V
REG 9V
REG 5V
UNREG
C IN
Y IN
ZONE
POWER
P1003
P1002
J3501 AV JACK
VIDEO OUT
VIDEO GND
AUDIO GND
AUDIO OUT
LINE OUT (L)
LINE OUT (R)
MAIN C.B.A. (VEP06572A)
SYSTEM CONTROL
SW6001 SW6002 SW6003 SW6004
TRACKING DOWN
TRACKING UP
SIFT
SET
J3502 S-VHS JACK
Y GND
C GND
Y OUT
C OUT
SUB REC C.B.A. (VEK4025)
START/STOP SWITCH C.B.A. (VEK3970)
FE HEAD
S-PHOTO Tr.
A/C HEAD
P4003
S-PHOTO
P4002
CTL GND
CTL
AE HEAD GND
AE HEAD
A HEAD (P)
A HEAD (R)
P4004
S/S SW
A D BATTERY +
EARPHONE OUT
A D BATTERY −
A.D BATTERY
EARPHONE JACK
EARPHONE C.B.A. (VEK3276)
P4005 (TO Hi-Fi AUDIO)
P4001 (TO Hi-Fi AUDIO)
MIC GND
AUDIO
P6003
FADE Ⓛ
KEY IN 2
KEY IN 3
SCAN 3
P6004
J6002
REMOTE Ⓛ
TALLY Ⓗ
P5501
P5502
P5503
REC CURR (GND)
REC CURR (HOT)
Hi-Fi AUDIO HEAD AMP C.B.A. (VEP05133B)
P3501
P3503
SUB VIDEO
SERVO
P4503
Hi-Fi AUDIO C.B.A. (VEP04261A)
(TO AUDIO) P4502
P4506 (TO SUB OPERATION)
P4501
(TO AUDIO) P4507
EXT.MIC (STEREO)
MIC
EXT.MIC(+B)
P5001
P5003
P5002
VIDEO HEAD AMP C.B.A. (VEP05132C)
P3001
P3002
PAL JOG PACK C.B.A. (VEP03616A)
LUMINANCE & CHROMINANCE PACK C.B.A. (VEP03617A)
P3701
RF AMP C.B.A. (VEP03562A)
P2001
1
2
3
4
5
6
7
8

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

NOTE: DO NOT USE ANY PART NUMBER
ORDERING. WHEN YOU ORDER A

CONNECTION SCHEMATIC DIAGRAM


TAKE UP REEL SENSOR C.B.A. (VEK3455)
LOAD
DEV SENSOR
MECH POSI SW
EVF JACK
DC JACK J1001
BATTERY
S-TAPE SW
S-TAB SW
WIDE
TELE
J3501 AV JACK
J3502 S-VHS JACK
START /STOP SWITCH C.B.A. (VEK3970)
FE HEAD
S-PHOTO Tr.
A/C HEAD
MAIN C.B.A. (VEP06572A)
SYSTEM CONTROL
SW6001 TRACKING DOWN
SW6002 TRACKING UP
SW6003 SIFT
SW6004 SET
POWER
TO TRIPOD FIXING BRACKET
TO PROCESS C.B.A. IN CAMERA SECTION
AUDIO
SUB VIDEO
SERVO
J6002 REMOTE CONTROL JACK
SUB OPERATION C.B.A. (VEK4033)
VTR OPERATION C.B.A. (VEP06515B)
CAMERA OPERATION C.B.A. (VEP26047B)
TO PROCESS C.B.A. IN CAMERA SECTION
TO AUTO FOCUS C.B.A. IN CAMERA SECTION
MOTOR DRIVE C.B.A. (VEP02318A)
CAS DOWN SW
SENSOR LED
CAP MOTOR
CYL MOTOR
Hi-Fi AUDIO HEAD AMP C.B.A. (VEP05133B)
Hi-Fi AUDIO C.B.A. (VEP04261A)
VIDEO HEAD AMP C.B.A. (VEP05132C)
LUMINANCE & CHROMINANCE PACK C.B.A. (VEP03617A)
PAL JOG PACK C.B.A. (VEP03616A)
RF AMP C.B.A. (VEP03582A)
2
3
4
5
6
7
8
9
10
11

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

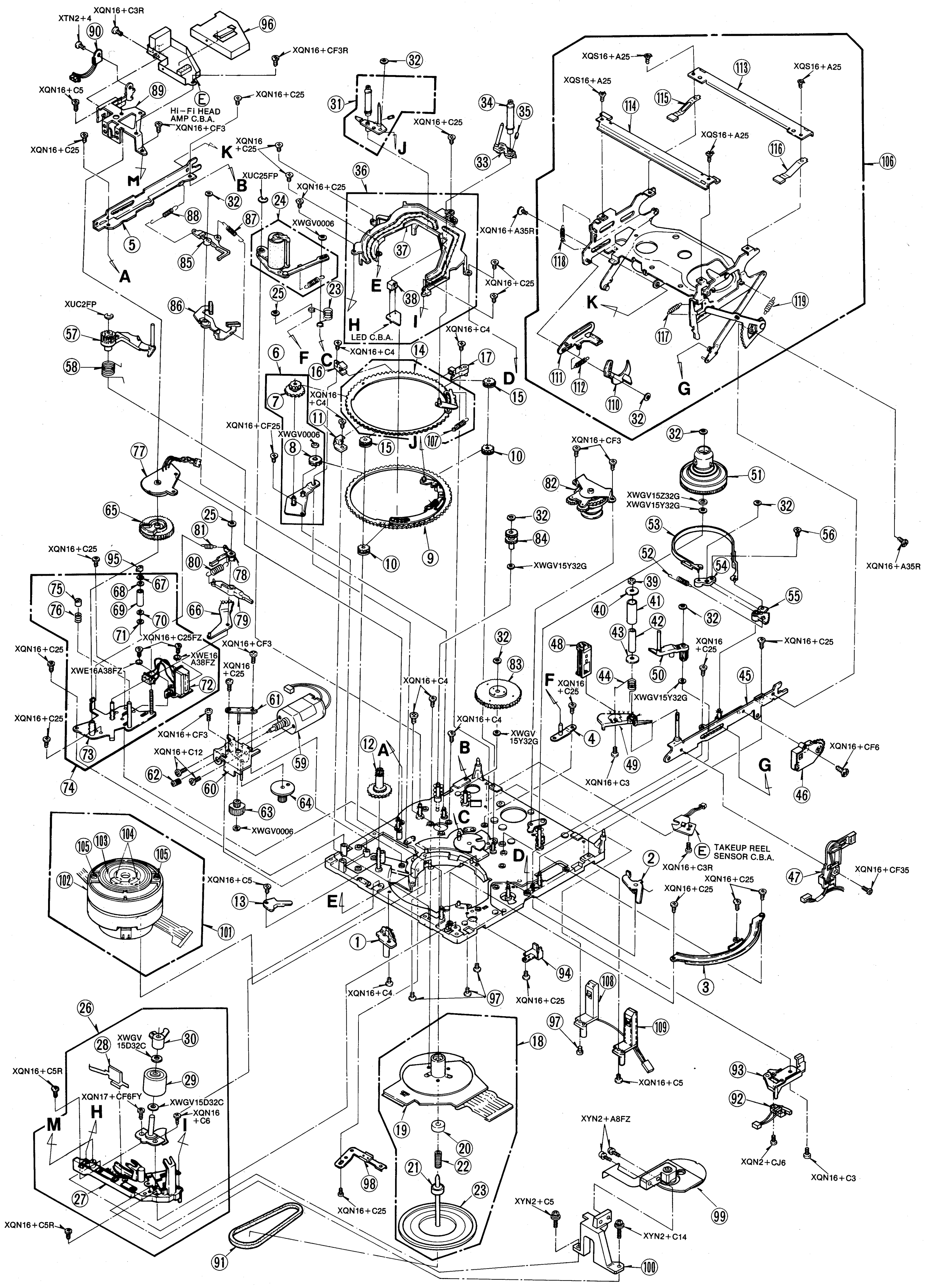
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

Next Page:
EXPLODED VIEWS Section

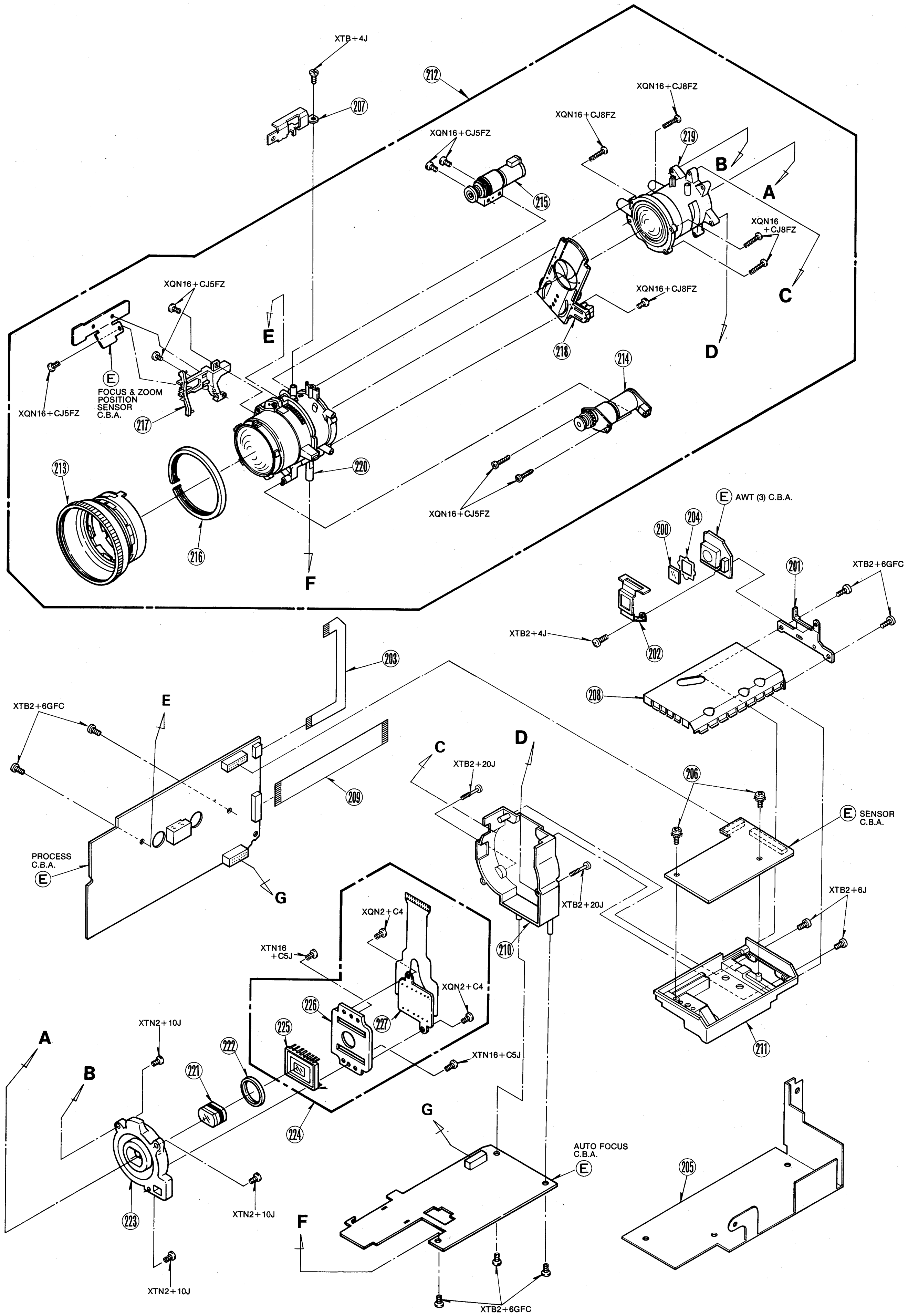
SECTION 4
EXPLODED VIEWS & PARTS LIST

4-1. EXPLODED VIEWS

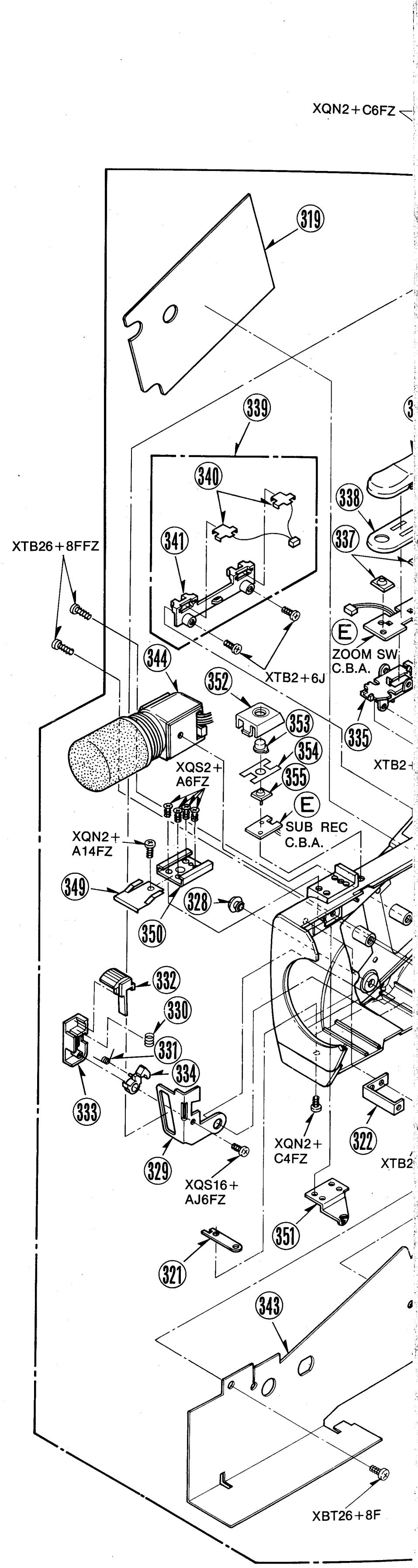
❶ VTR MECHANISM

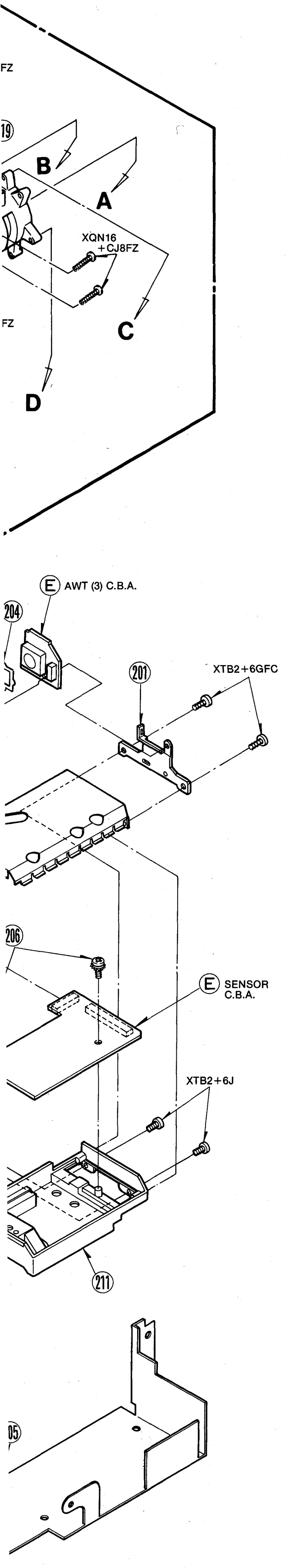

XTN2+4
XQN16+C3R
XQN16+CF3R
XQN16+C5
HI-FI HEAD AMP C.B.A.
XQN16+CF3
XQN16+C25
XUC25FP
XWGV0006
XQN16+A35R
XQS16+A25
XUC2FP
LED C.B.A.
XQN16+C4
XQN16+CF25
XQN16+CF3
XWGV15Z32G
XWGV15Y32G
XWE16A38FZ
XQN16+C25FZ
XQN16+C12
XQN16+CF6
XQN16+CF35
XQN16+C3
XWGV 15Y32G
TAKEUP REEL SENSOR C.B.A.
XQN16+C5R
XWGV 15D32C
XQN17+CF6FY
XWGV15D32C
XQN16+C6
XYN2+A8FZ
XYN2+C5
XYN2+C14
XQN2+CJ6
A
B
C
D
E
F
G
H
I
J
K
M

❷ CAMERA LENS SECTION

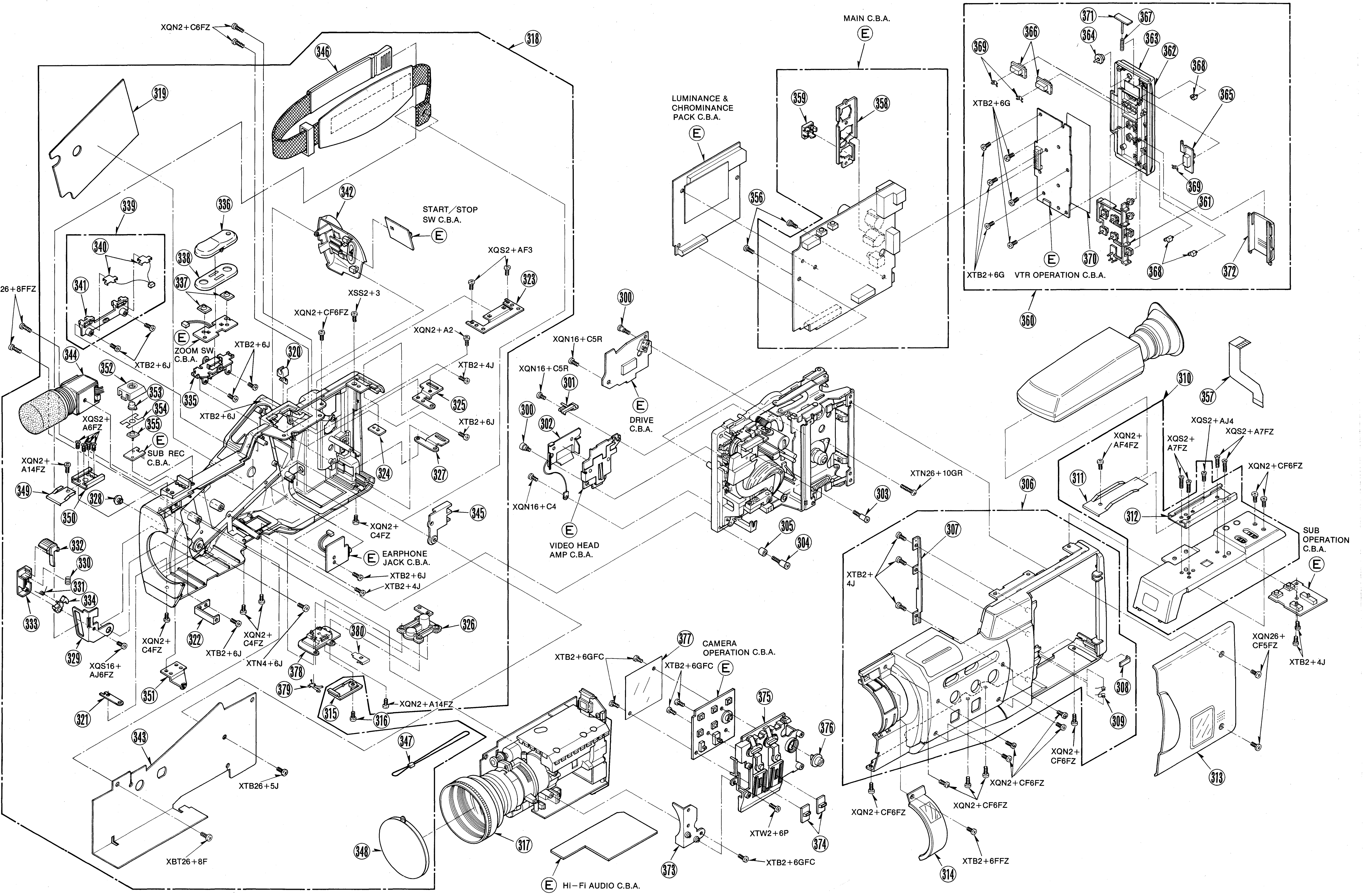

XTB+4J
XQN16+CJ8FZ
XQN16+CJ5FZ
XQN16 +CJ8FZ
FOCUS & ZOOM POSITION SENSOR C.B.A.
AWT (3) C.B.A.
XTB2+6GFC
XTB2+4J
PROCESS C.B.A.
XTB2+20J
SENSOR C.B.A.
XTB2+6J
XQN2+C4
XTN16 +C5J
XTN16+C5J
XTN2+10J
AUTO FOCUS C.B.A.
A
B
C
D
E
F
G

❸ CHASSIS & FRAME SE

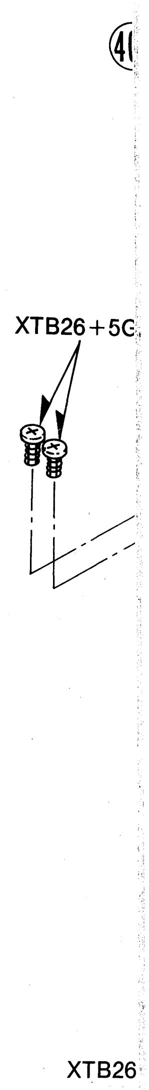

XQN2+C6FZ
XTB26+8FFZ
ZOOM SW C.B.A.
XTB2+6J
XQS2+ A6FZ
XQN2+ A14FZ
SUB REC C.B.A.
XQN2+ C4FZ
XQS16+ AJ6FZ
XBT26+8F

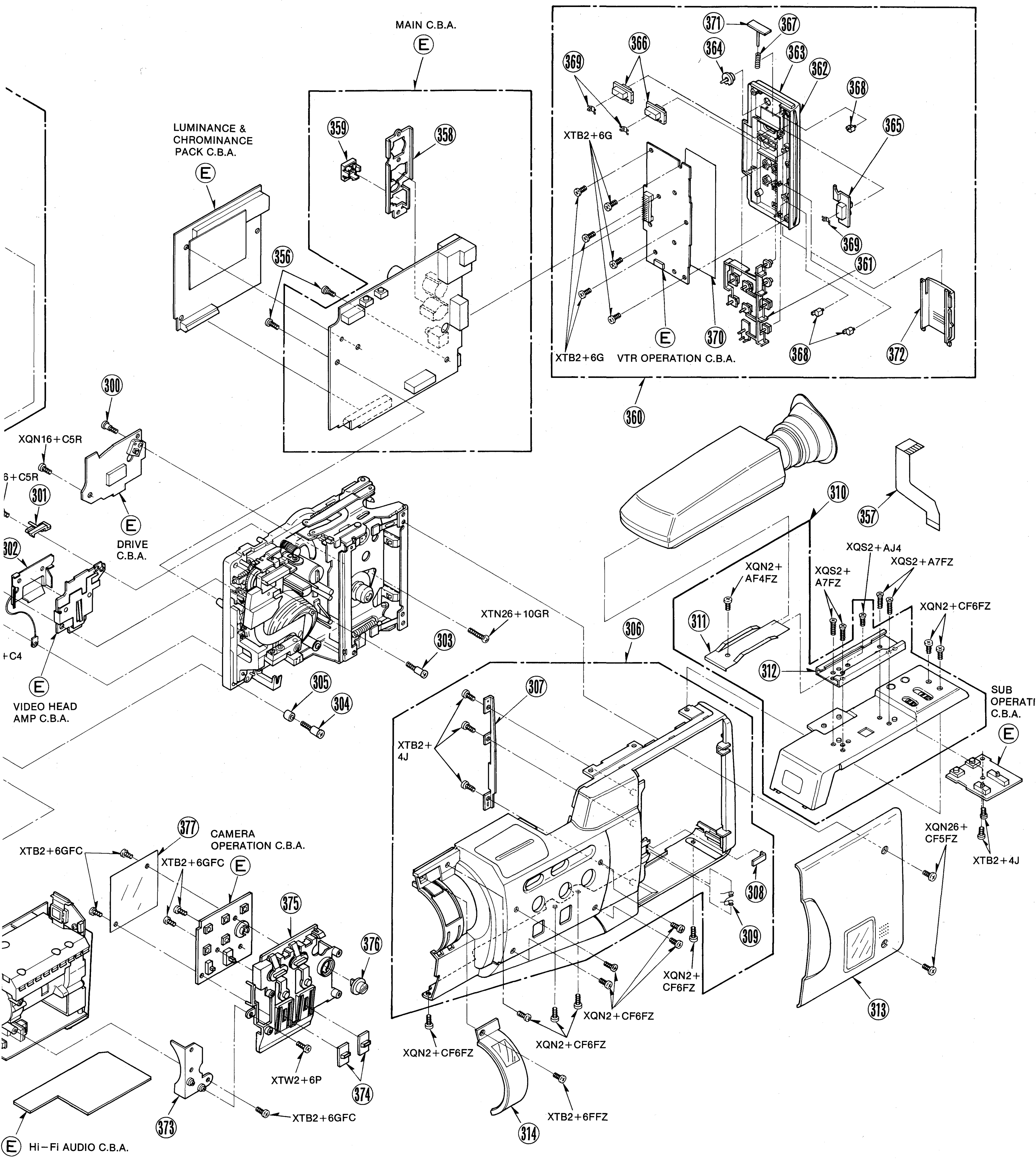

FZ
B
A
XQN16 +CJ8FZ
C
D
E AWT (3) C.B.A.
204
201
XTB2+6GFC
206
E SENSOR C.B.A.
XTB2+6J
211

❸ CHASSIS & FRAME SECTION

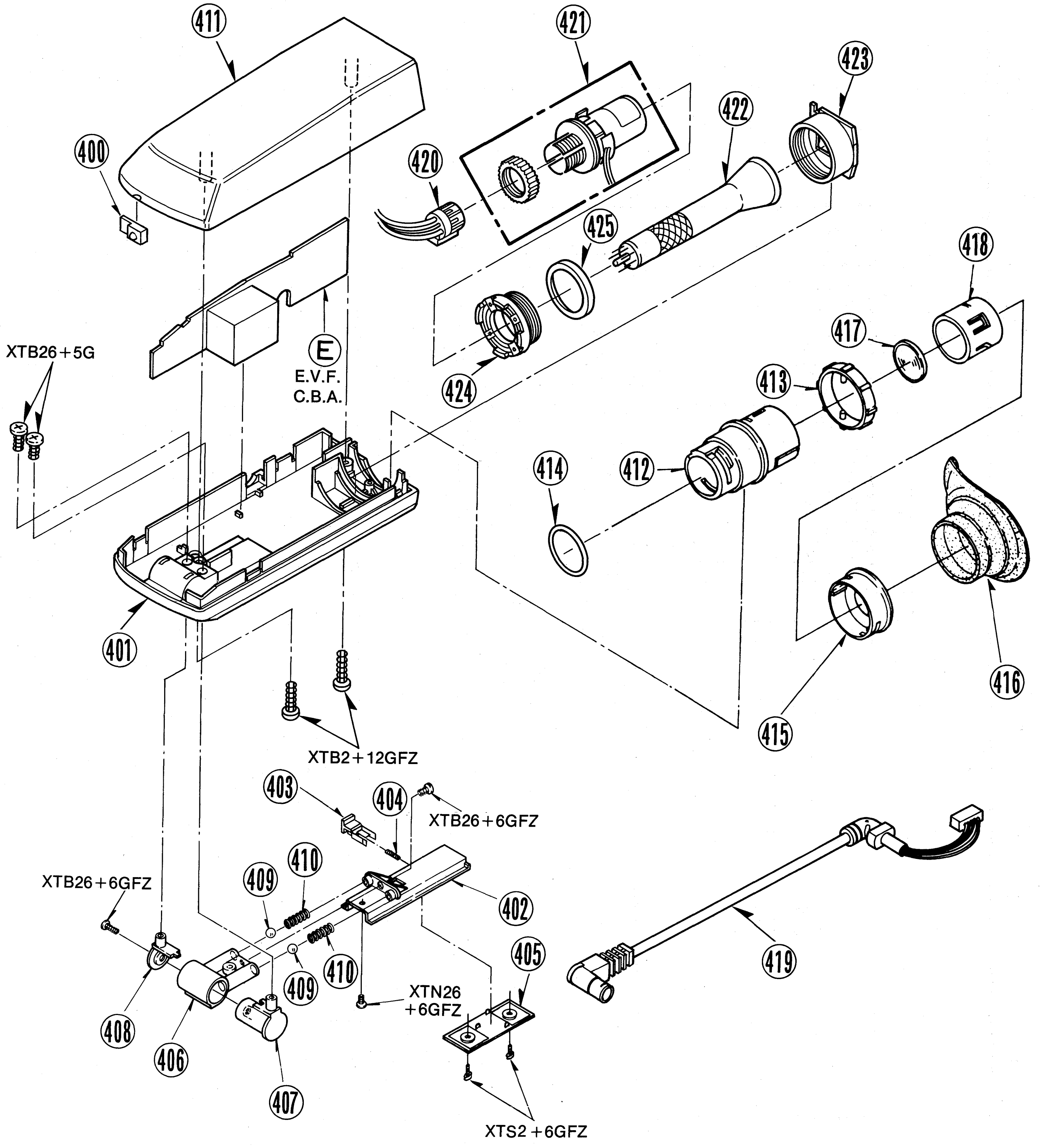

XQN2+C6FZ
318
346
319
339
340
341
336
338
337
342
START／STOP SW C.B.A.
E
XQS2+AF3
323
XTB26+8FFZ
E
ZOOM SW C.B.A.
XTB2+6J
XSS2+3
XQN2+CF6FZ
XQN2+A2
320
XTB2+4J
XTB2+6J
344
352
353
354
355
E
SUB REC C.B.A.
XQS2+ A6FZ
335
XTB2+6J
325
XTB2+6J
324
327
XQN2+ A14FZ
349
350
328
345
XQN2+ C4FZ
E
EARPHONE JACK C.B.A.
XTB2+6J
XTB2+4J
332
330
331
334
333
329
XQS16+ AJ6FZ
XQN2+ C4FZ
322
XTB2+6J
XQN2+ C4FZ
XTN4+6J
326
380
378
379
351
321
315
316
XQN2+A14FZ
343
XTB26+5J
XBT26+8F
347
348
317
E Hi−Fi AUDIO C.B.A.
XTB2+6GFC
377
CAMERA OPERATION C.B.A.
XTB2+6GFC
E
375
376
373
374
XTW2+6P
XTB2+6GFC
300
XQN16+C5R
XQN16+C5R
301
300
302
E
DRIVE C.B.A.
XQN16+C4
E
VIDEO HEAD AMP C.B.A.
XTN26+10GR
303
305
304
LUMINANCE & CHROMINANCE PACK C.B.A.
E
MAIN C.B.A.
E
359
358
356
371
367
366
364
363
362
369
368
365
XTB2+6G
369
361
XTB2+6G
VTR OPERATION C.B.A.
E
370
368
372
360
357
310
XQN2+ AF4FZ
XQS2+ A7FZ
XQS2+AJ4
XQS2+A7FZ
XQN2+CF6FZ
311
312
306
307
XTB2+ 4J
SUB OPERATION C.B.A.
E
XQN26+ CF5FZ
XTB2+4J
308
309
313
XQN2+ CF6FZ
XQN2+CF6FZ
XQN2+CF6FZ
XQN2+CF6FZ
314
XTB2+6FFZ

❹ E.

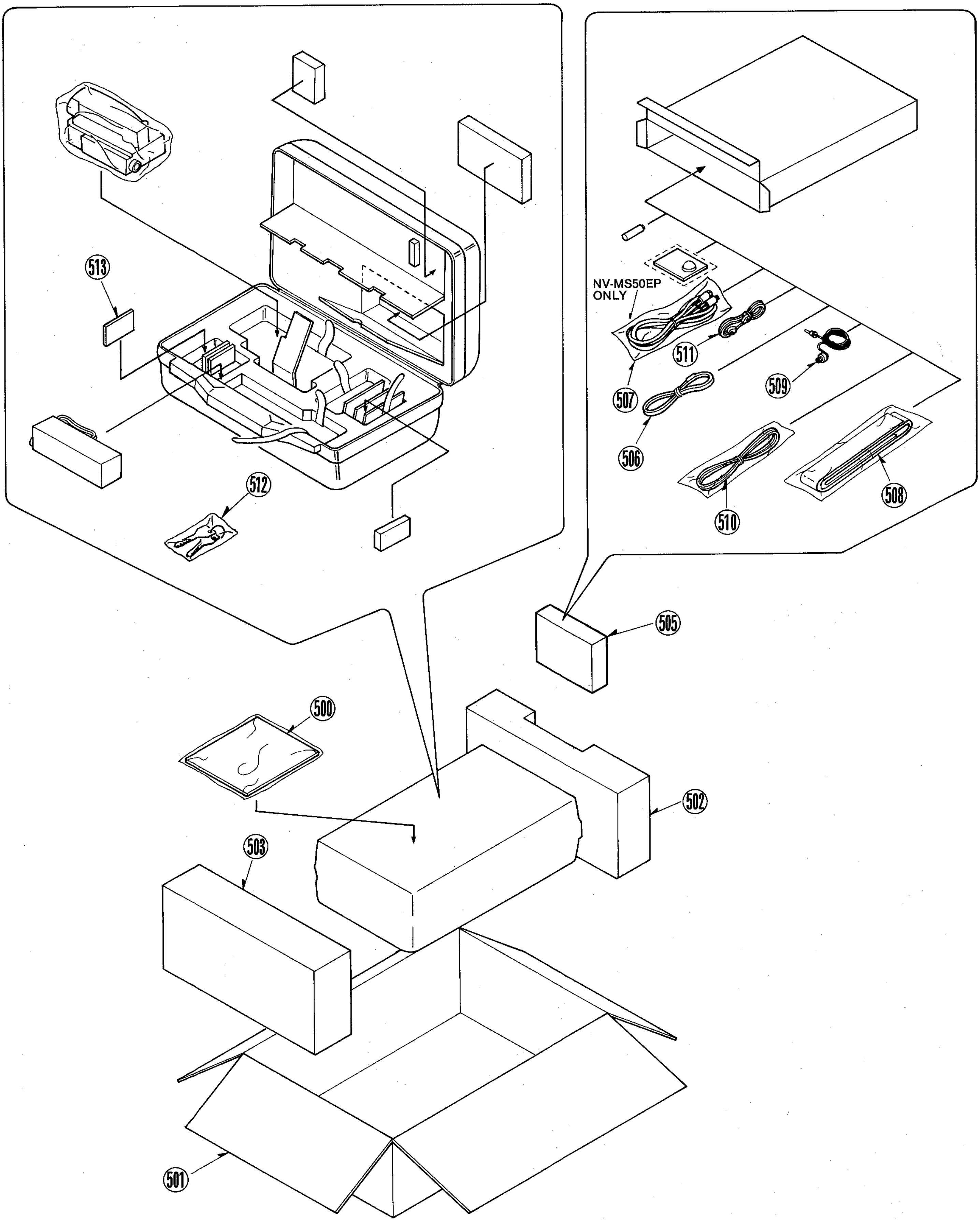

4(
XTB26+5G
XTB26


MAIN C.B.A.
E
LUMINANCE & CHROMINANCE PACK C.B.A.
E
359
358
356
369
366
371
367
364
363
362
368
365
XTB2+6G
369
361
XTB2+6G
VTR OPERATION C.B.A.
E
370
368
372
360
300
XQN16+C5R
6+C5R
301
302
E
DRIVE C.B.A.
+C4
E
VIDEO HEAD AMP C.B.A.
XTN26+10GR
303
305
304
310
357
XQN2+ AF4FZ
XQS2+ A7FZ
XQS2+AJ4
XQS2+A7FZ
XQN2+CF6FZ
311
312
SUB OPERATION C.B.A.
E
306
307
XTB2+ 4J
XQN26+ CF5FZ
XTB2+4J
308
309
XQN2+ CF6FZ
313
377
CAMERA OPERATION C.B.A.
XTB2+6GFC
XTB2+6GFC
E
375
376
XQN2+CF6FZ
XQN2+CF6FZ
XQN2+CF6FZ
XTW2+6P
374
373
XTB2+6GFC
314
XTB2+6FFZ
E
Hi−Fi AUDIO C.B.A.

❹ E.V.F. SECTION

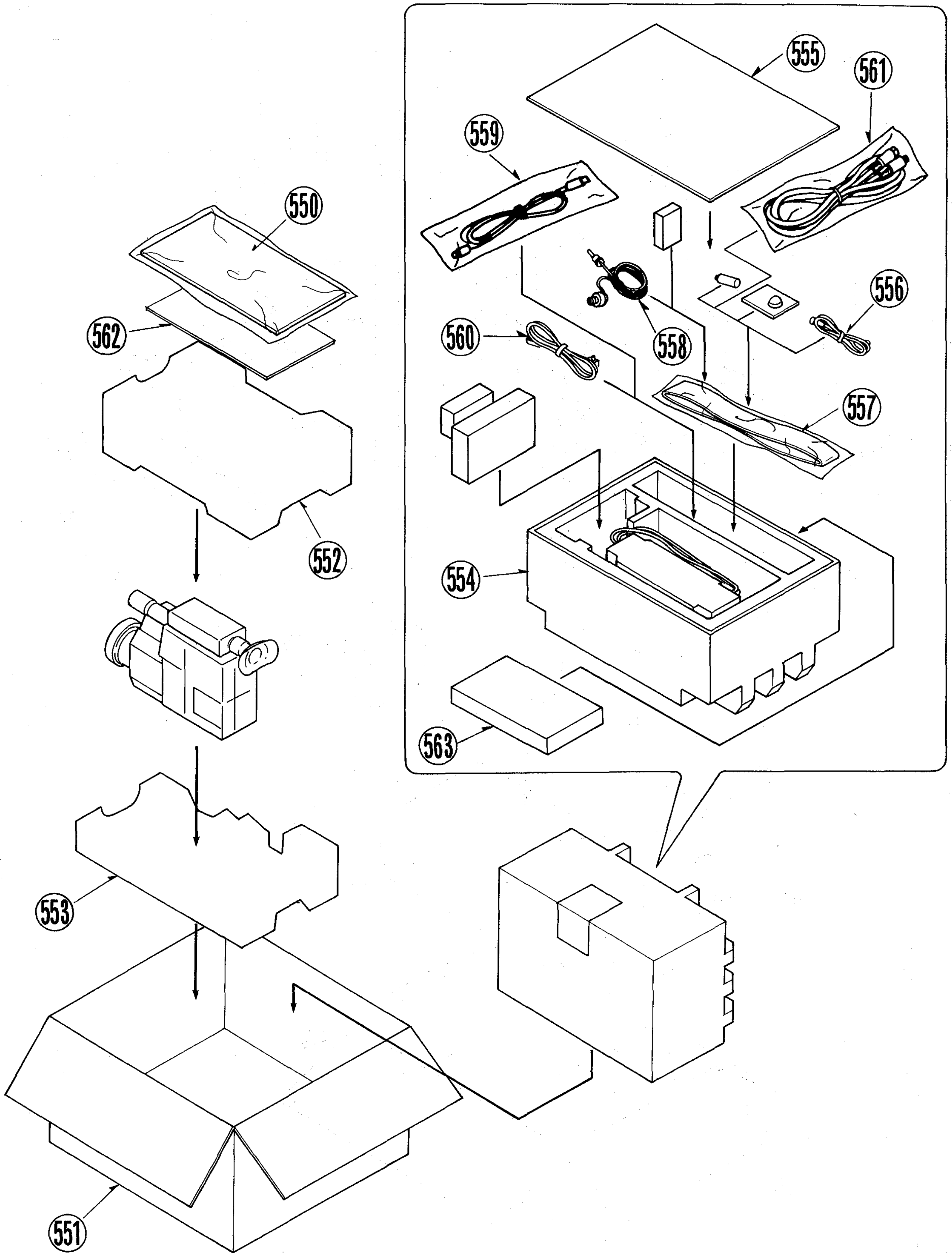

411
421
423
400
420
422
425
418
E
E.V.F. C.B.A.
XTB26+5G
424
417
413
414
412
401
XTB2+12GFZ
416
415
403
404
XTB26+6GFZ
XTB26+6GFZ
409
410
402
410
409
405
XTN26 +6GFZ
419
408
406
407
XTS2 +6GFZ

❺ PACKING PARTS & ACCESSORIES SECTION (NV-MS50B/EP)



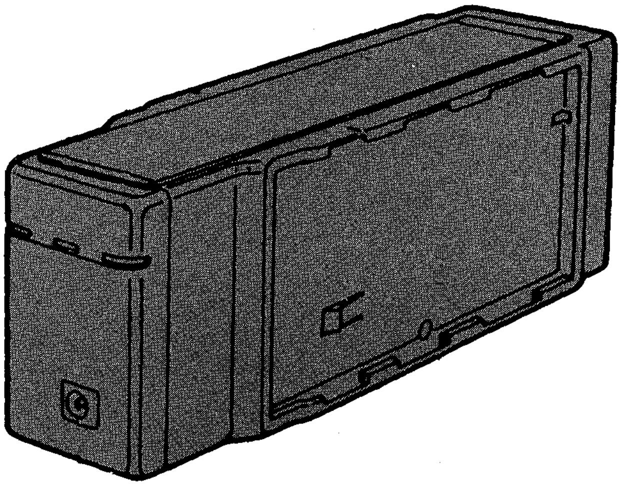
513
512
NV-MS50EP ONLY
511
509
507
506
510
508
505
500
502
503
501

❻ PACKING PARTS & ACCESSORIES SECTION (NV-MS50E/EG/EW)


555
561
559
550
556
562
560
558
557
552
554
563
553
551

AC Adaptor

VW-AMC2$^{E}_{B}$



SPECIFICATIONS

ITEM	SPECIFICATION	ITEM	SPECIFICATION
POWER	SOURCE: 100~240V AC 50/60Hz (Automatic Voltage Adjustment)	DIMENSIONS	53(W) × 68.5(H) × 191(D)mm
	CONSUMPTION: 25 watts	WEIGHT	0.56kg
	OUTPUT: DC 9.6V, 1.0A for S-VHS-C Movie DC 9.6V, 0.86A for battery charge		

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

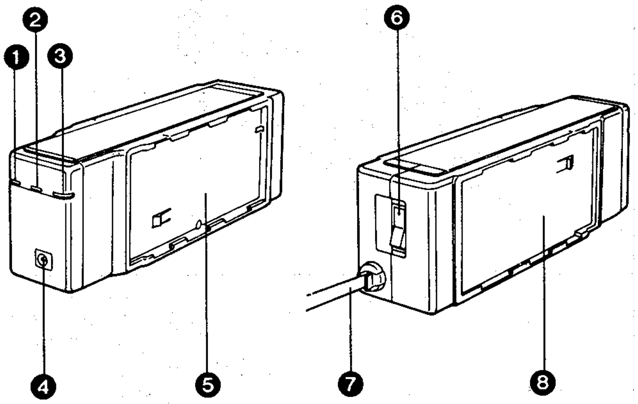
CAUTION: FOR USE WITH S-VHS-C VIDEO MOVIE, MODEL NV-MS50.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

CONTENTS

1. CONTROLS AND COMPONENTS 1
2. DISASSEMBLY PROCEDURES 1
3. AC ADAPTOR BLOCK DIAGRAM 3
4. AC ADAPTOR SCHEMATIC DIAGRAM 5
5. MAIN C.B.A., CHARGE CONTROL C.B.A., PRIMARY COIL C.B.A. & LED C.B.A. 7
6. EXPLODED VIEWS 9
    ❶ CASING & CHASSIS PARTS SECTION 9
MECHANICAL REPLACEMENT PARTS LIST
ELECTRICAL REPLACEMENT PARTS LIST

1. CONTROLS AND COMPONENTS



❶ Charge (1) Indicator Lamp
❷ Power Indicator Lamp
❸ Charge (2) Indicator Lamp
❹ DC Output Socket
❺ Battery Holder (2)
❻ Power Switch with Indicator Lamp
❼ AC Mains Lead
❽ Battery Holder (1)

Precautions

- Avoid violent shocks and rough handling of the unit.
- Do not allow liquid to spill into the unit.
- Do not place heavy objects on the unit.
- When unplugging the mains cord or other connection cords, be sure to grasp the plug, not the cord.
- When listening to a radio while the AC Adaptor is in operation, the radio reception may be distorted. In this case, move the radio away from the AC Adaptor.

2. DISASSEMBLY PROCEDURES

1.DISASSEMBLY FLOW CHART

This flow chart indicates the disassembly steps of the cabinet parts and the P.C. Boards in order to gain access to item(s) to be serviced.
When re-assembling, perform the step(s) in the reverse order.

Note:
When removing the Top Case Unit, work with care so as not to break the locking portions of the Top Case Unit.

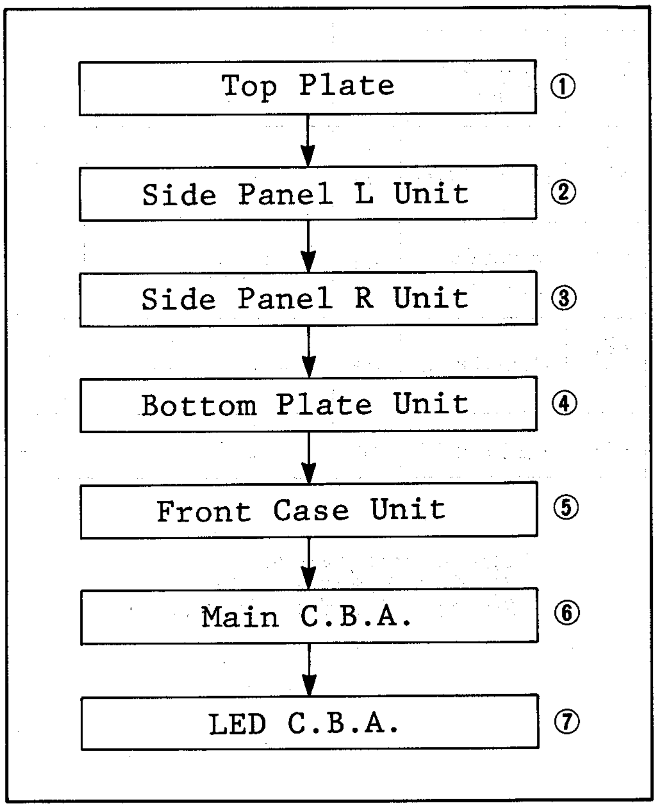

Top Plate ①
Side Panel L Unit ②
Side Panel R Unit ③
Bottom Plate Unit ④
Front Case Unit ⑤
Main C.B.A. ⑥
LED C.B.A. ⑦

Fig. A1

2.DISASSEMBLY METHOD

Step /Loc No.	Part	REMOVAL		
		Fig. No.	Remove *UNLOCK/RELEASE/ UNPLUG/UNCLAMP	Note
①	Top Plate	A2	(S-1), 2(S-2), (S-3)	
②	Side Panel L Unit			
③	Side Panel R Unit			
④	Bottom Plate	A3	------	----
⑤	Front Case Unit	A4	*2(L-3)	----
⑥	Main C.B.A.	A4	------	----
⑦	LED C.B.A.	A4	*(L-4)	----

List of Abbreviations:
3(S−1) = 3 Screws (S−1)
2(L−1) = 2 Locking Tabs (L−1)

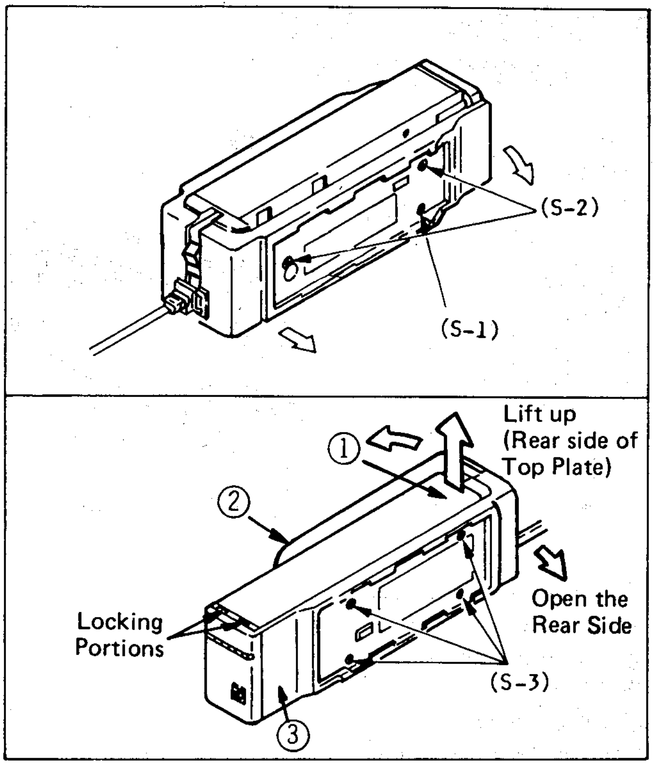
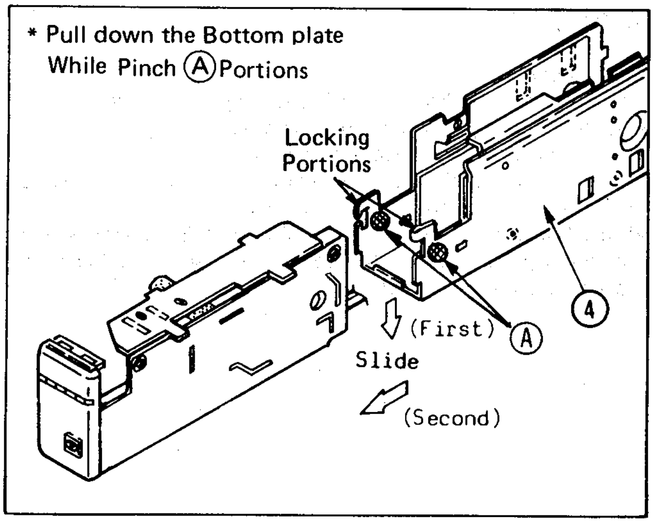

(S-2)
(S-1)
①
Lift up
(Rear side of
Top Plate)
②
Open the
Rear Side
Locking
Portions
(S-3)
③

Fig. A2


* Pull down the Bottom plate
While Pinch Ⓐ Portions

Locking
Portions
(First)
Ⓐ
④
Slide
(Second)

Fig. A3

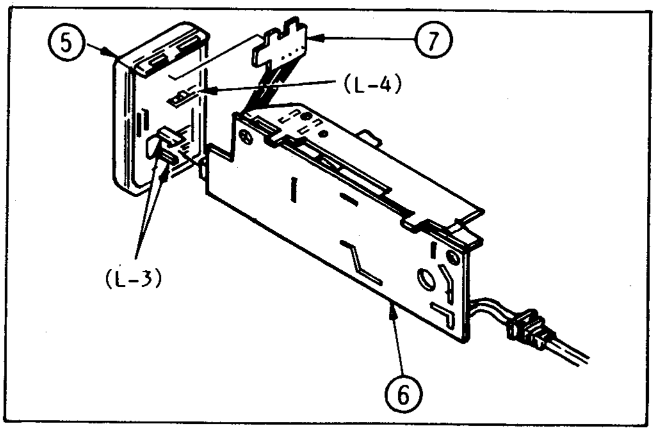
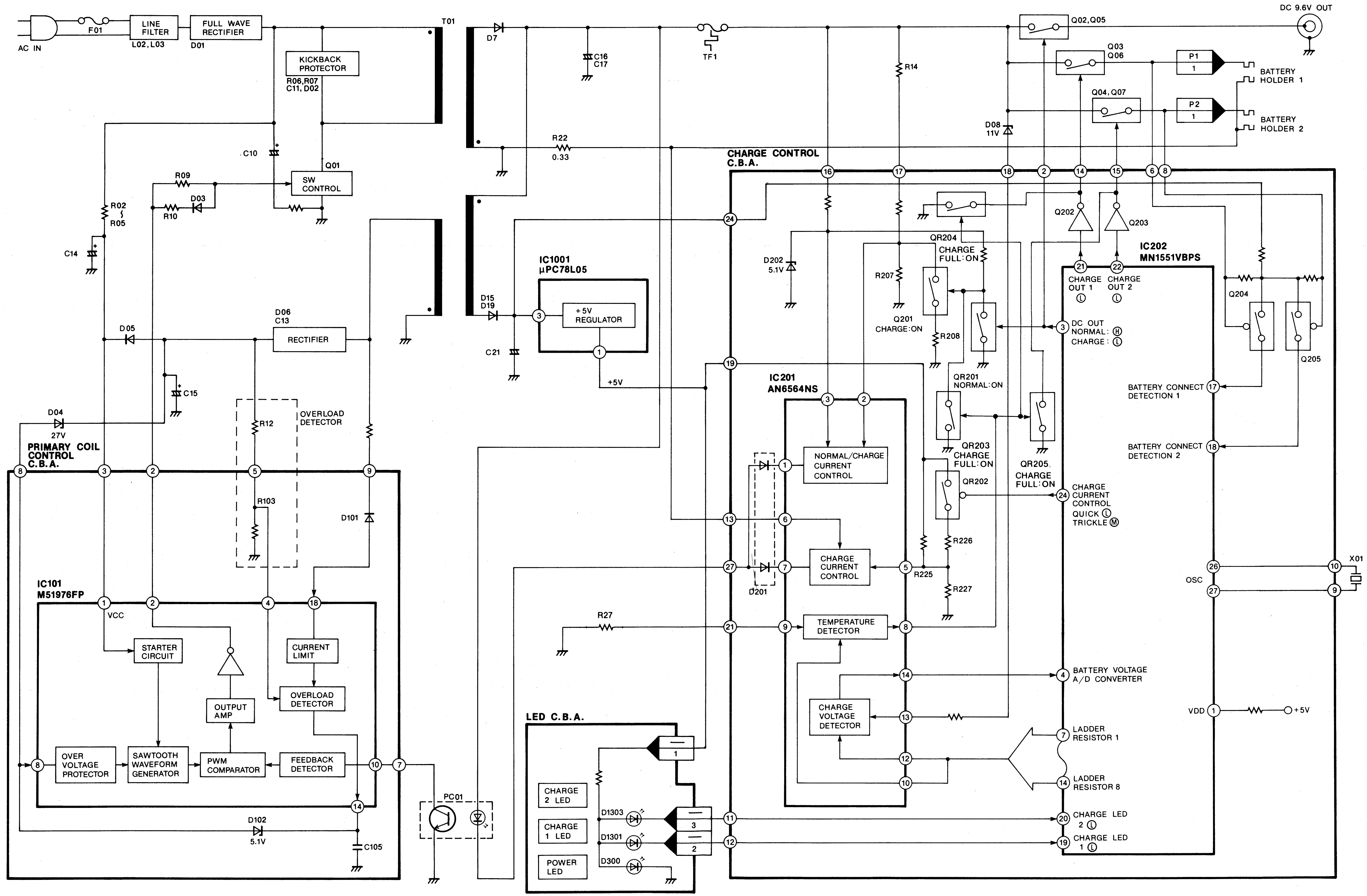
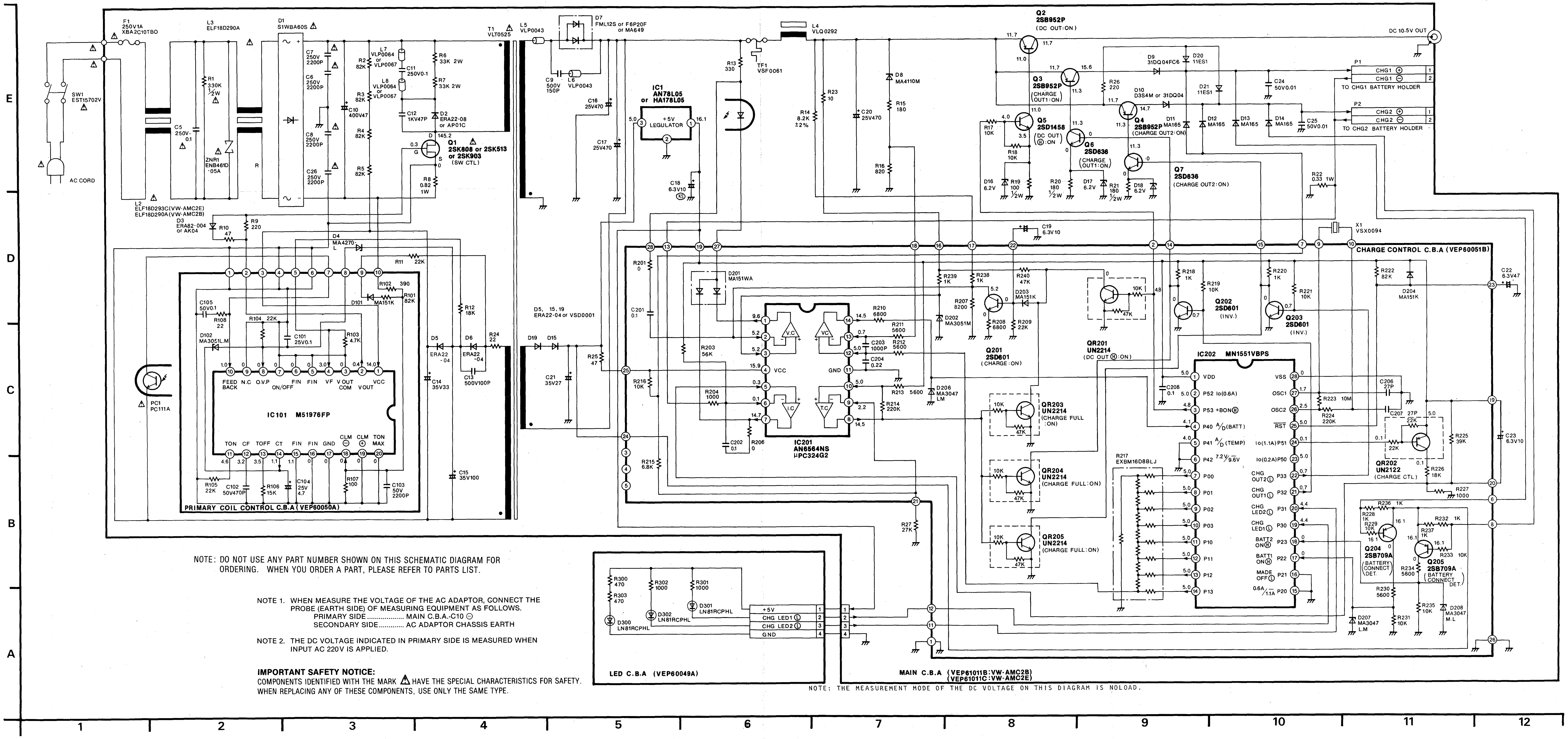


Fig. A4

3. AC ADAPTOR BLOCK DIAGRAM


AC IN
F01
LINE FILTER
L02, L03
FULL WAVE RECTIFIER
D01
KICKBACK PROTECTOR
R06,R07
C11, D02
T01
C10
Q01
SW CONTROL
R09
D03
R10
R02
R05
C14
D06
C13
RECTIFIER
D05
C15
OVERLOAD DETECTOR
R12
D04
27V
PRIMARY COIL CONTROL C.B.A.
R103
D101
IC101
M51976FP
VCC
STARTER CIRCUIT
CURRENT LIMIT
OVERLOAD DETECTOR
OUTPUT AMP
OVER VOLTAGE PROTECTOR
SAWTOOTH WAVEFORM GENERATOR
PWM COMPARATOR
FEEDBACK DETECTOR
D102
5.1V
C105
PC01
D7
C16
C17
R22
0.33
D15
D19
IC1001
μPC78L05
+5V REGULATOR
C21
+5V
TF1
R14
Q02,Q05
DC 9.6V OUT
Q03
Q06
Q04,Q07
P1
P2
BATTERY HOLDER 1
BATTERY HOLDER 2
D08
11V
CHARGE CONTROL C.B.A.
Q202
Q203
QR204
CHARGE FULL:ON
D202
5.1V
R207
Q201
CHARGE:ON
R208
QR201
NORMAL:ON
IC202
MN1551VBPS
CHARGE OUT 1 Ⓛ
CHARGE OUT 2 Ⓛ
Q204
Q205
DC OUT
NORMAL: Ⓗ
CHARGE: Ⓛ
BATTERY CONNECT DETECTION 1
BATTERY CONNECT DETECTION 2
IC201
AN6564NS
NORMAL/CHARGE CURRENT CONTROL
QR203
CHARGE FULL:ON
QR205
CHARGE FULL:ON
QR202
CHARGE CURRENT CONTROL
QUICK Ⓛ
TRICKLE Ⓜ
D201
CHARGE CURRENT CONTROL
R226
R225
R227
X01
OSC
R27
TEMPERATURE DETECTOR
BATTERY VOLTAGE A/D CONVERTER
CHARGE VOLTAGE DETECTOR
VDD
+5V
LADDER RESISTOR 1
LADDER RESISTOR 8
LED C.B.A.
CHARGE 2 LED
CHARGE 1 LED
POWER LED
D1303
D1301
D300
CHARGE LED 2 Ⓛ
CHARGE LED 1 Ⓛ

4. AC ADAPTOR SCHEMATIC DIAGRAM


F1 250V1A XBA2C10TBO
L3 ELF18D290A
D1 S1WBA60S
T1 VLT0525
L5 VLP0043
D7 FML12S or F6P20F or MA649
L4 VLQ0292
Q2 2SB952P (DC OUT:ON)
DC 10.5V OUT
SW1 EST15702V
AC CORD
ZNR1 ENB461D -05A
L2 ELF18D293C(VW-AMC2E) ELF18D290A(VW-AMC2B)
Q1 2SK808 or 2SK513 or 2SK903 (SW CTL)
IC1 AN78L05 or HA178L05
+5V LEGULATOR
TF1 VSF0061
Q3 2SB952P (CHARGE OUT1:ON)
Q4 2SB952P (CHARGE OUT2:ON)
Q5 2SD1458 (DC OUT ⑧:ON)
Q6 2SD636 (CHARGE OUT1:ON)
Q7 2SD636 (CHARGE OUT2:ON)
P1 CHG1 ⊕ CHG1 ⊖ TO CHG1 BATTERY HOLDER
P2 CHG2 ⊕ CHG2 ⊖ TO CHG2 BATTERY HOLDER
X1 VSX0094
PC1 PC111A
IC101 M51976FP
PRIMARY COIL CONTROL C.B.A (VEP60050A)
IC201 AN6564NS μPC324G2
IC202 MN1551VBPS
Q201 2SD601 (CHARGE:ON)
Q202 2SD601 (INV.)
Q203 2SD601 (INV.)
QR201 UN2214 (DC OUT ⑧:ON)
QR202 UN2122 (CHARGE CTL)
QR203 UN2214 (CHARGE FULL :ON)
QR204 UN2214 (CHARGE FULL:ON)
QR205 UN2214 (CHARGE FULL:ON)
Q204 2SB709A (BATTERY CONNECT DET.)
Q205 2SB709A (BATTERY CONNECT DET.)
R217 EXBM16D8BLJ
CHARGE CONTROL C.B.A (VEP60051B)
LED C.B.A (VEP60049A)
D300 LN81RCPHL
D301 LN81RCPHL
D302 LN81RCPHL
+5V
CHG LED1 ①
CHG LED2 ①
GND
MAIN C.B.A (VEP61011B:VW-AMC2B) (VEP61011C:VW-AMC2E)
A
B
C
D
E
1
2
3
4
5
6
7
8
9
10
11
12

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

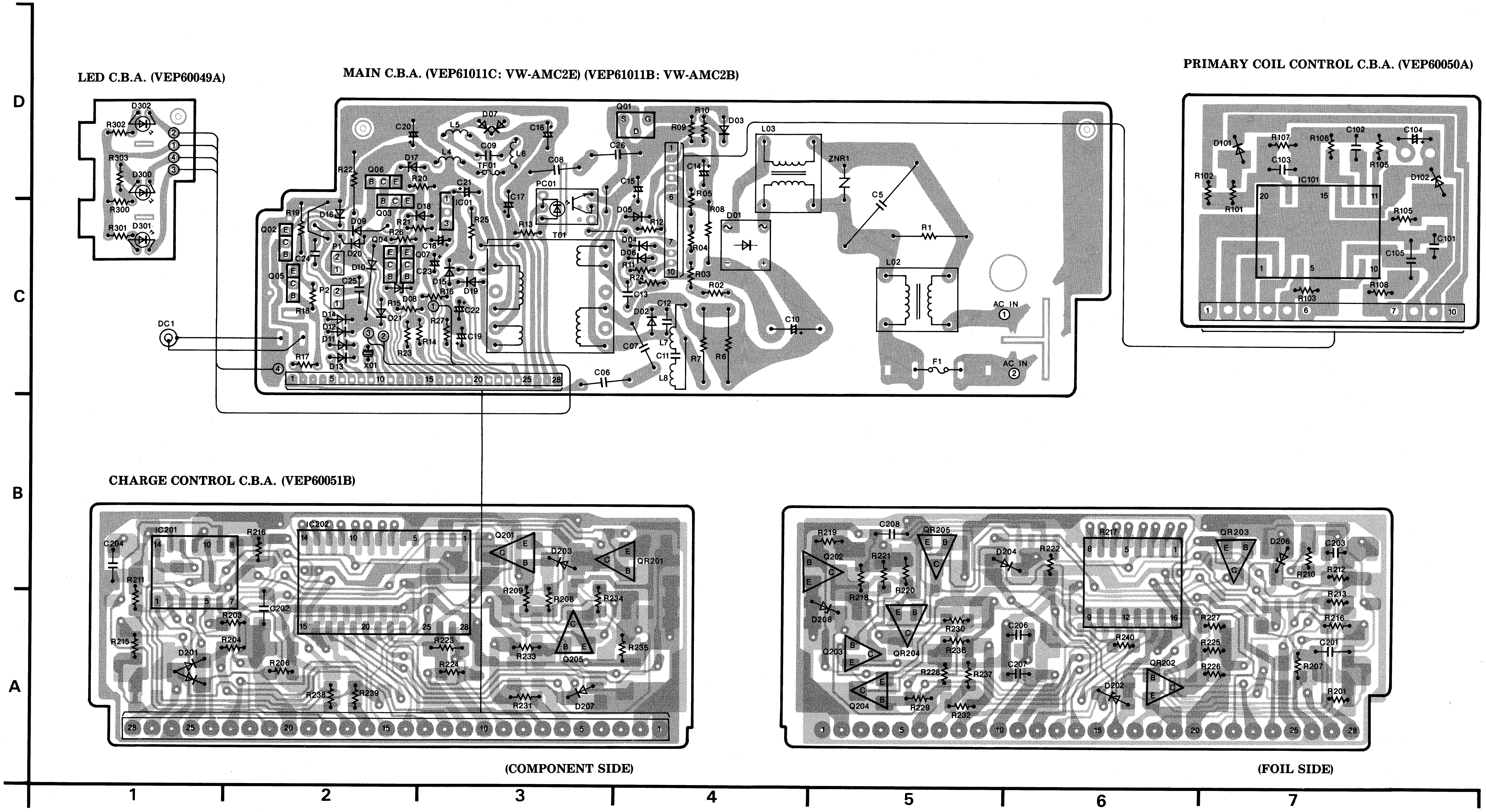
NOTE 1. WHEN MEASURE THE VOLTAGE OF THE AC ADAPTOR, CONNECT THE PROBE (EARTH SIDE) OF MEASURING EQUIPMENT AS FOLLOWS.
PRIMARY SIDE .... MAIN C.B.A.-C10 ⊖
SECONDARY SIDE .... AC ADAPTOR CHASSIS EARTH

NOTE 2. THE DC VOLTAGE INDICATED IN PRIMARY SIDE IS MEASURED WHEN INPUT AC 220V IS APPLIED.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

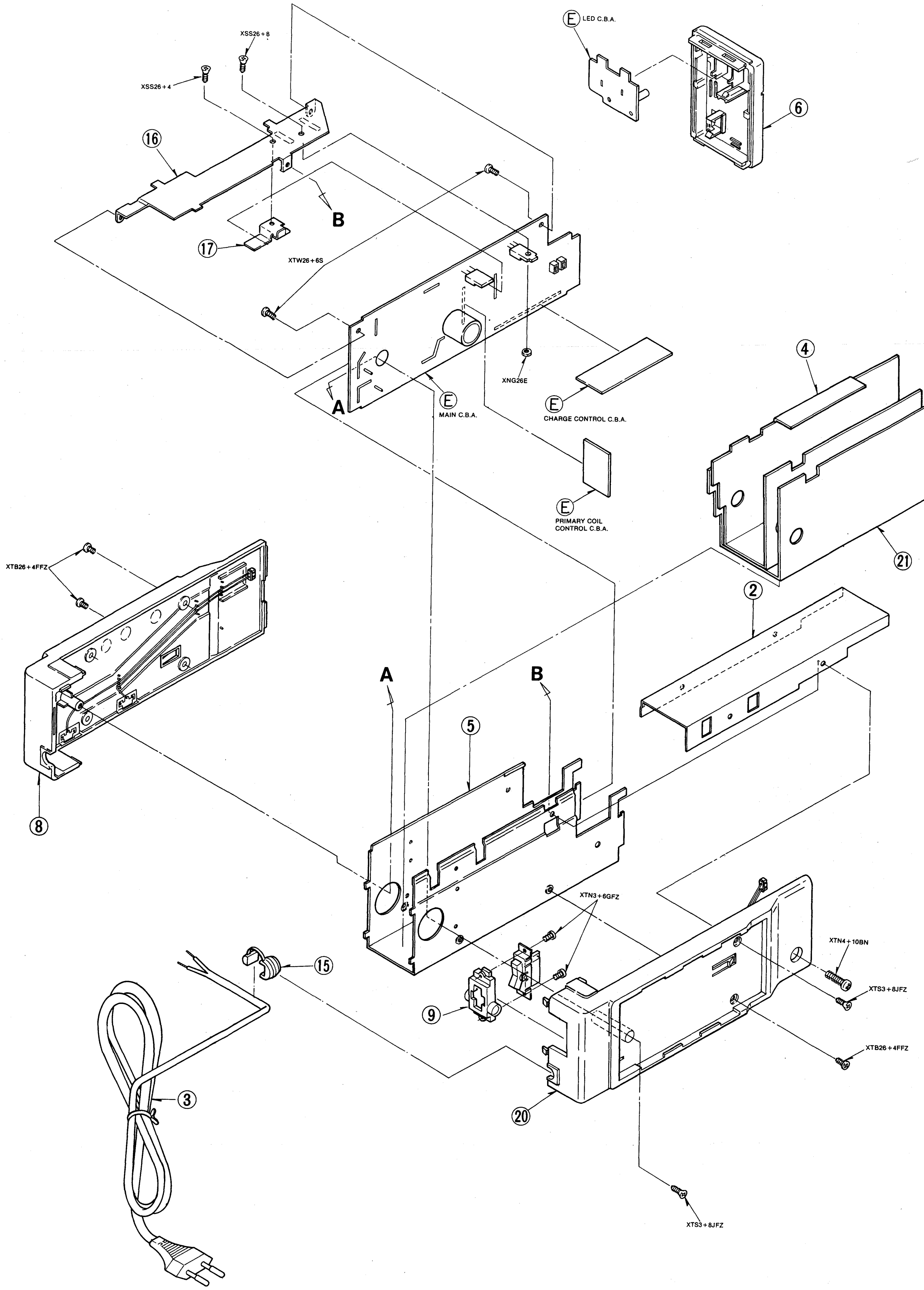
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS NOLOAD.

5. MAIN C.B.A. (VEP61011B: VW-AMC2B) (VEP61011C: VW-AMCE), CHARGE CONTROL C.B.A. (VEP60051A), PRIMARY COIL C.B.A. (VEP60050A) & LED C.B.A. (VEP60049A)


LED C.B.A. (VEP60049A)
MAIN C.B.A. (VEP61011C: VW-AMC2E) (VEP61011B: VW-AMC2B)
PRIMARY COIL CONTROL C.B.A. (VEP60050A)
CHARGE CONTROL C.B.A. (VEP60051B)
(COMPONENT SIDE)
(FOIL SIDE)
DC1
AC IN ①
AC IN ②
D
C
B
A
1
2
3
4
5
6
7

6. EXPLODED VIEWS

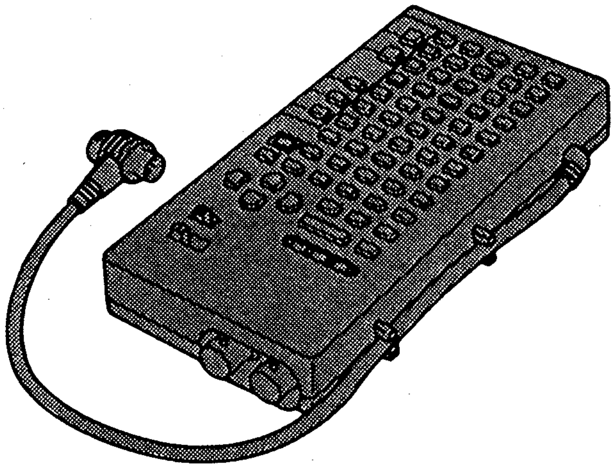
❶ CASING & CHASSIS PARTS SECTION


XSS26+8
XSS26+4
⑯
⑰
B
XTW26+6S
A
Ⓔ MAIN C.B.A.
XNG26E
Ⓔ CHARGE CONTROL C.B.A.
Ⓔ PRIMARY COIL CONTROL C.B.A.
Ⓔ LED C.B.A.
⑥
④
㉑
②
XTB26+4FFZ
⑧
A
B
⑤
XTN3+6GFZ
XTN4+10BN
XTS3+8JFZ
XTB26+4FFZ
⑮
⑨
③
⑳
XTS3+8JFZ

Memo

Character Generator

VW-CG2E



VW-CG2E

SPECIFICATIONS

VW-CG2E

ITEM	SPECIFICATION
POWER	DC 4.85V
VIDEO	INPUT: VIDEO IN CONNECTOR (BNC type) 1.0Vp-p 75Ω terminated OUTPUT: VIDEO OUT CONNECTOR (BNC type) 1.0Vp-p 75Ω terminated
WEIGHT	155g (without Batteries)
DIMENSIONS	71 (W) × 142 (H) × 26 (D)mm
ACCESSORIES	3 pcs. Button-type Alkaline Batteries 1 pc. Shoe Adaptor

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

CONTENTS

1. GENERAL DESCRIPTION 1
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    1. CHARACTER GENERATOR SECTION 18
    2. CHARACTER GENERATOR PACKING SECTION 19
MECHANICAL REPLACEMENT PARTS LIST
ELECTRICAL REPLACEMENT PARTS LIST

1. GENERAL DESCRIPTION

1-1. VW-CG2E

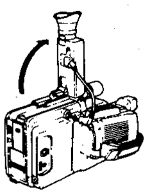
1-1-1. FEATURES

- **Title Recording**
- **Time/Date Recording**
- **Stopwatch Recording**
- **Superimpose Title Recording During Dubbing**
- **Multi-Language Capability**

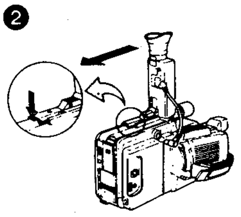
1-1-2. HOW TO ATTACH THE VW-CG2

Use the Shoe Adaptor that is supplied with the Character Generator.

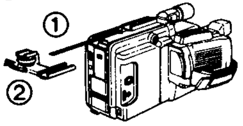
❶



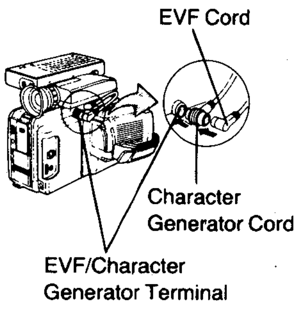
❷



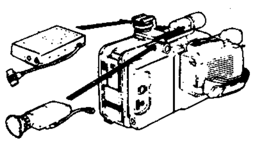
❸



❺



❹



❶ Disconnect the EVF Cord and turn the EVF upward.

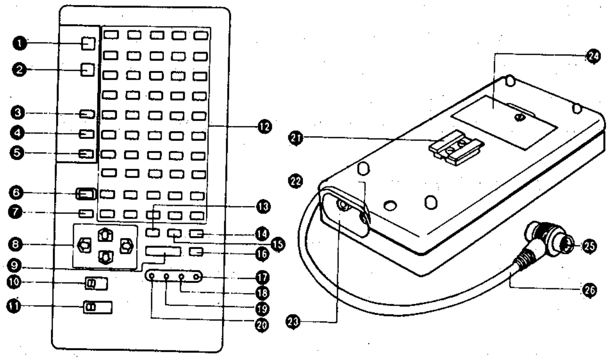
❷ Keep pressing the part indicated by the arrow and remove the EVF by sliding it toward the rear.

❸ Attach the Shoe Adaptor and tighten the screw.

❹ Attach the EVF and the Character Generator to the Shoe Adaptor.

❺ Insert the plug of the EVF Cord into the back of the plug of the Character Generator Cord and insert them together into the EVF/Character Generator Terminal.

1-1-3. CONTROLS COMPONENTS AND FUNCTIONS



❶ DISPLAY Button
For displaying or deleting titles on the screen.

❷ PAGE Button
For changing pages.

❸ START/STOP Button
For starting/stopping the stopwatch, and starting/stopping the scrolling during recording.

❹ LAP/RESET Button
For indicating the lap time, resetting the stopwatch and resetting scrolling to the beginning during preview.

❺ SCROLL Button
This button is used for different functions in the title scroll mode.

❻ CLEAR Button
For returning the cursor to the beginning of the first line. When used with the SHIFT Button, it deletes all titles on the page.

❼ SPACE Button
For leaving a blank space the size of one character.

❽ Cursor Buttons
For moving the cursor or (when used with the SHIFT Button) moving the titles, or changing the scrolling speed.

❾ SHIFT Button
This button must be pressed together with another button.

	Functions
SIZE Button	To change the size of the characters of the line on which the cursor is placed.
Letter/ Number/ Symbol Buttons	To input small letters while in the capital letter mode, or for inputting capital letters while in the small letter mode. In the symbol mode, this button has no effect.
Cursor Buttons	To move the titles.
PAGE Button	To change to the previous page.
CLEAR Button	To delete all titles on the page being displayed. (The page is also erased in the memory.)

❿ Date Selector (DATE·DATE/CLOCK)
For selecting the Date Indication or the Date/Clock Indication.

⓫ Mode Selector
For selecting the mode (title editing, title recording, stopwatch, auto date).

⓬ Letter/Number/Symbol Buttons
For inputting letters, numbers and symbols.

⓭ SIZE Button
For selecting the size of the characters for the titles.

⓮ SYMBOL Button
For inputting symbols.

⓯ SMALL LETTER Button
For selecting capital letters (upper case) or small letters (lower case).

⓰ DELETE Button
For deleting one character to the left of the cursor.

㉑ Mounting Adaptor Foot
Attach the supplied Shoe Adaptor and mount the Character Generator on the VHS/VHS-C Movie.

㉒ Video Input Jack (VIDEO IN)
For superimposing titles while dubbing .from the VHS/VHS-C Movie onto another VTR.

㉓ Video Output Jack (VIDEO OUT)
For superimposing titles while dubbing from the VHS/VHS-C Movie onto another VTR.

㉔ Battery Compartment
Install the button-type batteries for memory back-up.

㉕ EVF Terminal
Connect the Electronic Viewfinder of the VHS/VHS-C Movie to this terminal.

㉖ Connection Cable
Connect this cable to the EVF Terminal of the VHS/VHS-C Movie.

Buttons used for setting the date and the time (⓱ ~ ⓳)

⓱ SET Button

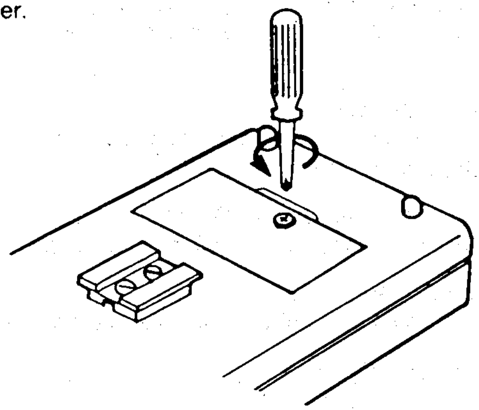
⓲ SHIFT Button

⓳ ADJ Button

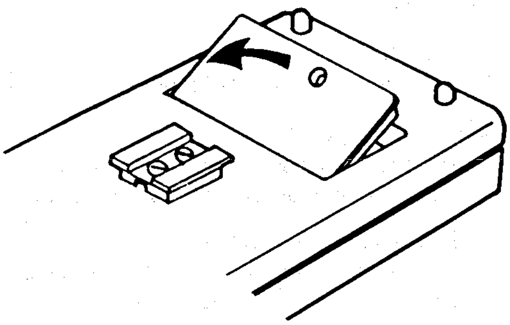
⓴ ALL RESET Button
Pressing this button deletes all memorized titles.

1-1-4. INSTALLING THE BATTERIES

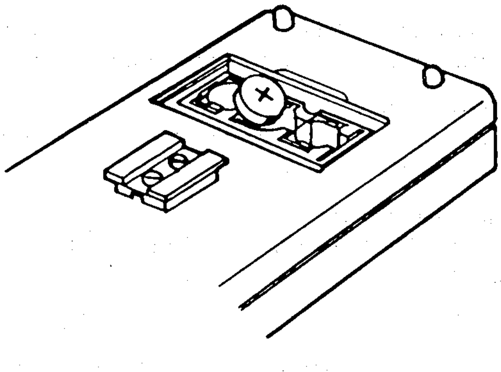
1. Remove the screw of the battery compartment cover with a screwdriver.



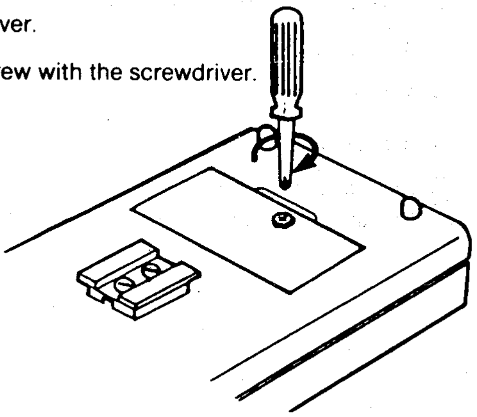
2. Remove the cover.



3. Insert three button-type alkaline batteries (LR44H) with their plus (+) side facing up.



4. Replace the cover.
5. Tighten the screw with the screwdriver.



In this Character Generator, three button-type alkaline batteries (LR44H) are used for memory back-up.
Even when the VHS/VHS-C Movie is turned off, the composed titles are still memorized as long as the batteries are not exhausted. The battery life is approximately 3~4 months.

- **Replacing the Batteries**

If the batteries are replaced with the Character Generator or the VHS/VHS-C Movie turned off, the memory will be erased.

When replacing the batteries, follow the instructions below.

1. Connect the Character Generator to the VHS/VHS-C Movie, and turn the camera on.
2. Install three new batteries.

   Besides the LR44H type batteries, MR44, NR44 and LR44 type batteries can also be used.

Button-type Alkaline Batteries

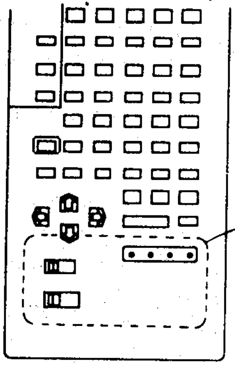
Keep the button-type alkaline batteries out of the reach of children. If a battery is swallowed, consult a doctor immediately.

- If battery leakage has occurred, wipe off the liquid completely and then install new batteries.

To prevent bursting or leaking of the batteries:
- Be sure to replace all three batteries with new ones at the same time.
- Install the batteries with their polarities (+) and (−) correctly aligned.
- Do not short-circuit, charge, disassemble or overheat the batteries, nor throw them into a fire.

1-1-5. SETTING THE CLOCK

Turn on the VHS/VHS-C Movie to which the Character Generator is connected, and set the clock while watching the Electronic Viewfinder (or the TV screen when the camera is connected to the TV set).

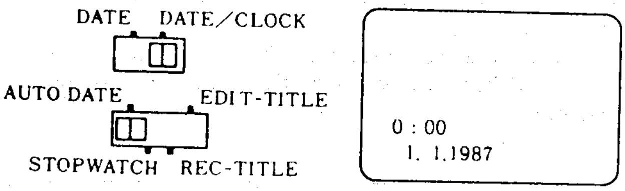


The clock can only be set with the buttons and switches of this section.

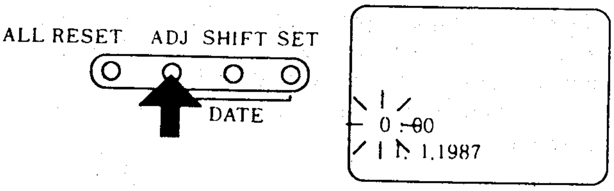
Automatic clock indication is possible till December 31, 2010, 23:59, as long as the batteries are not exhausted. When the clock is reset, it will start from January 1, 1987, 0:00.

- When the batteries become weak, a wrong date and time will be displayed (for example, 15:70). In this case, immediately replace the batteries with new ones. After the replacement, set the date and time again.

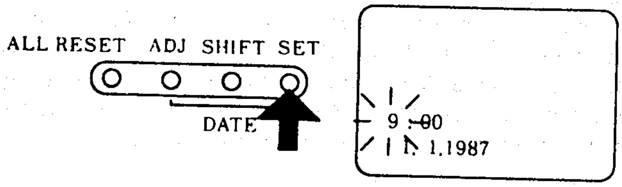
1. Set the Mode Selector to "AUTO DATE" and the Date Selector to "DATE/CLOCK".
   - The date and time will be displayed in the lower left corner of the screen.
   - When the Date Selector is set to "DATE", only the date will be displayed.



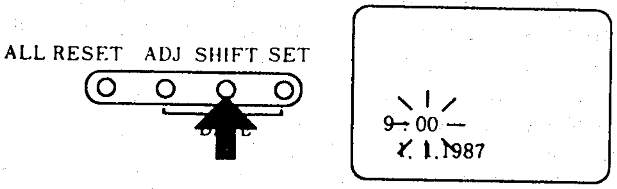
2. Press the ADJ Button.
   - The first part of the indication will flash.
   - Press the ADJ, SHIFT and SET Buttons with the tip of a ball-point pen, etc.



3. Set the flashing part of the indication by pressing the SET Button.
   - Keeping the SET Button pressed will change the indication continuously.



4. Press the SHIFT Button.
   - The next part of the indication will flash.



- Repeat steps 3 and 4 to set the hour, minute, day, month and year.

5. When the setting of the clock is completed, press the ADJ Button again.
   - The operation of the clock will now start.

• How the Indications Change

Hour → 0 → 1 → 2 → 3 → 4 → . . . → 22 → 23 ↵

Minute → 00 → 01 → 02 → 03 → . . . → 57 → 58 → 59 ↵

Day → 1 → 2 → 3 → 4 → . . . → 28 → (29) → (30) → (31) ↵

Month → 1 → 2 → 3 → 4 → 5 → . . . → 10 → 11 → 12 ↵

Year → 1987 → 1988 → 1989 → . . . → 2009 → 2010 ↵

• How the Flashing Part of the Indication Changes

→ Hour → Minute → Day → Month → Year ↵

• Moving the Display Position

Press the appropriate Cursor Button while pressing the SHIFT Button. Just like your own titles, the date and time indication can also be moved up and down, right and left.

- The new position of the date and time indication will be memorized.

• Recording the Date and/or the Time

Set the Mode Selector to "AUTO DATE".

- The date and/or the time can be recorded in the same way as the titles. (See page 18.)
- It is possible to display or delete the indication by pressing the DISPLAY Button.

1-1-6. COMPOSING AND EDITING THE TITLES

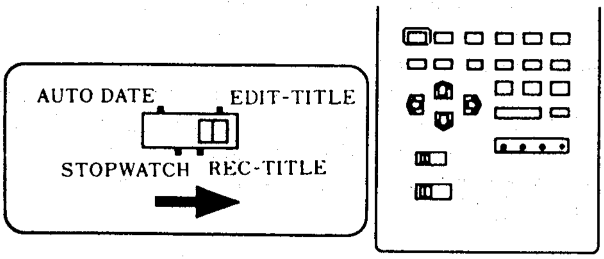
Before shooting, compose and edit titles that you may later want to use during recording.
As the composed titles are memorized, it is possible to revise them later and to insert them at desired positions during recording.
Compose and edit the titles while watching the Electronic Viewfinder of the VHS/VHS-C Movie, or the TV screen. Connect the VHS/VHS-C Movie to the TV set in the same way as when the Character Generator is not mounted. (See the operating instructions of the VHS/VHS-C Movie.)

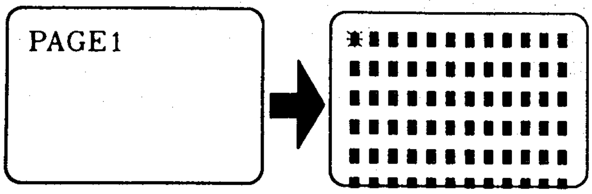
- **Title Pages**

Title pages 1 to 9 can be used for titles only and on PAGE A, both titles and auto date indication can be displayed at the same time. (See the table below.)

Display Contents and Functions	PAGE 1 ~ PAGE 9	PAGE A
Character Size	S, M, L, LL	M
Maximum Number of Characters (1 page)	20 characters × 9 lines = 180 characters	12 characters × 4 lines = 48 characters
Title Movement. Scroll Function	Yes	No
Auto Date Indication	No	Yes

1. Set the Mode Selector to "EDIT-TITLE".
   - The indication "PAGE 1" will be displayed in the upper left corner of the screen for about 1 second and then the "■" marks indicating the character size will appear for 12 characters × 6 lines. (The 6th line will not be displayed completely.)
     The flashing "■" mark indicates the position of the cursor.
   - If the Lens Cap is put on the VHS/VHS-C Movie, the indications become easier to see.



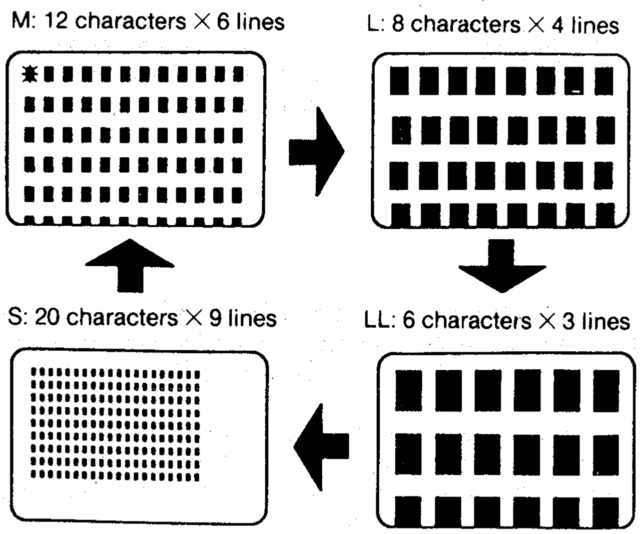


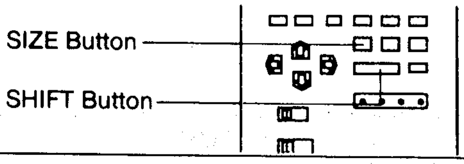
2. Select the desired character size by pressing the SIZE Button.
   There are four different character sizes to choose from.

Changing the Size of All Characters on the Screen

The "M" character size is automatically selected by default. By pressing the SIZE Button, the character size changes as shown below.

- When a character size other than "S" is selected, the last displayed line is not displayed completely.

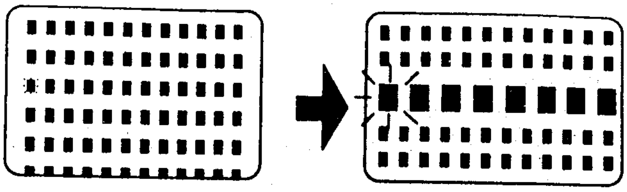

M: 12 characters × 6 lines
L: 8 characters × 4 lines
S: 20 characters × 9 lines
LL: 6 characters × 3 lines



Changing the Character Size of a Single Line

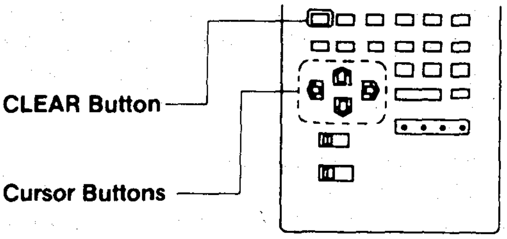
Move the cursor to the line where you want to change the character size, and then press the SIZE Button while pressing the SHIFT Button.
After the size is changed, the cursor will move to the beginning of the line.

- When an already composed title is changed to a larger size, the end of the title may be cut off on the screen because it is too long.



- If the SIZE Button is pressed after changing the character size of individual lines on a page, all lines will be changed to the next larger size, as illustrated on the left.
- It is possible to change the character size after inputting characters.

3. To move the cursor to the position where you want to input characters, press the Cursor Button for the desired direction.
   - Keeping the Cursor Button pressed moves the cursor continuously.



⇨ Button: The cursor moves to the right. After reaching the end of a line, it moves to the beginning of the next lower line.

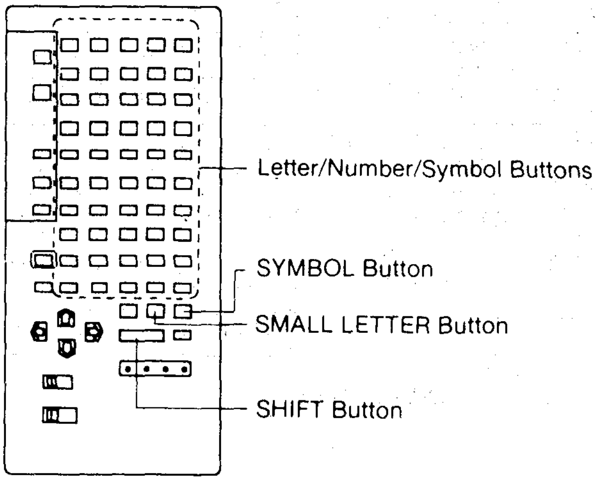
⇦ Button: The cursor moves to the left. After reaching the beginning of a line, it moves to the end of the next higher line.

⇩ Button: The cursor moves to the beginning of the next lower line. After reaching the bottom line, it returns to the beginning of the top line.

⇧ Button: The cursor moves to the beginning of the next higher line. After reaching the top line, it returns to the beginning of the bottom line.

- The capacity of a title page is 9 lines irrespective of the character size. When a character size other than "S" is selected, the cursor may leave the screen at the right or at the bottom.
- When the CLEAR Button is pressed, the cursor will return to the beginning of the top line.

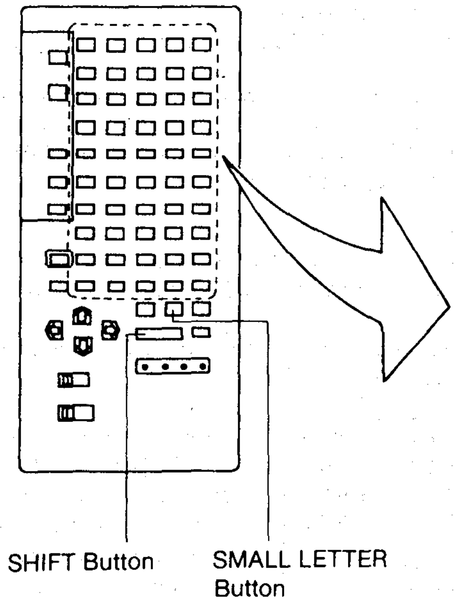
4. Input characters.
   - Use the buttons shown in the illustration below.



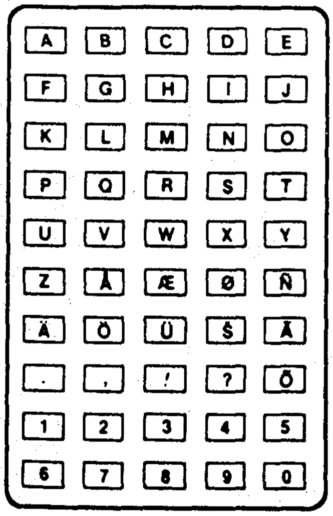
• Inputting Letters, Numbers and Symbols

By pressing the Letter/Number/Symbol Buttons, the characters which are indicated on the buttons (capital letters) can be input. To input small letters, press the buttons while keeping the SHIFT Button pressed.

- Pressing the SMALL LETTER Button puts the unit in the small letter mode and small letters can be input. To input capital letters while in this mode, input them while pressing the SHIFT Button. To return the unit to the capital letter mode, press the SMALL LETTER Button again.

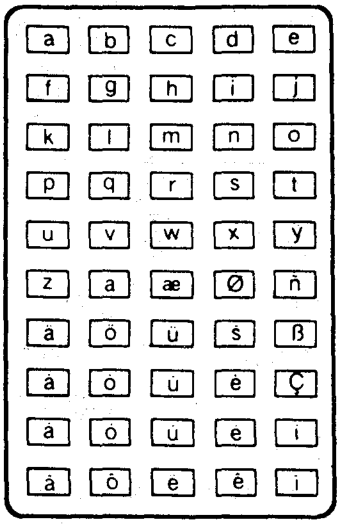


• Capital Letter Mode



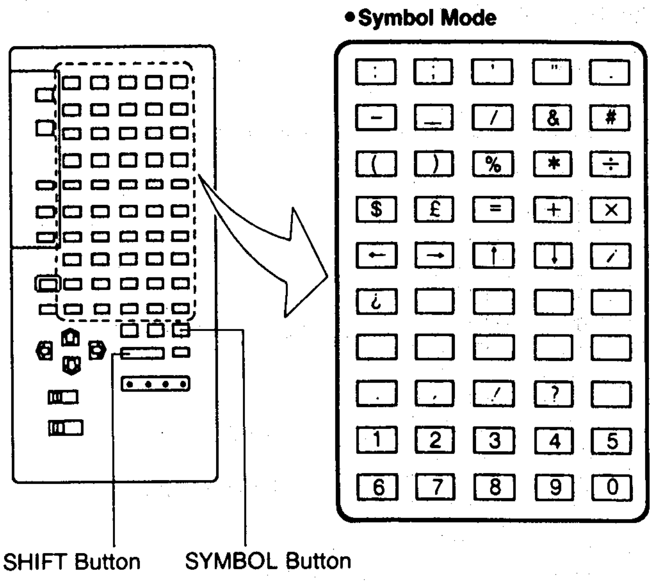
A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
P	Q	R	S	T
U	V	W	X	Y
Z	Å	Æ	Ø	Ñ
Ä	Ö	Ü	$	Ã
.	,	!	?	Õ
1	2	3	4	5
6	7	8	9	0

• Small Letter Mode



a	b	c	d	e
f	g	h	i	j
k	l	m	n	o
p	q	r	s	t
u	v	w	x	y
z	å	æ	ø	ñ
ä	ö	ü	$	ß
à	ò	ù	è	Ç
á	ó	ú	é	í
â	ô	ë	ê	î

- Pressing the SYMBOL Button puts the unit in the symbol mode and symbols can be input. In this mode, the SHIFT Button does not function.



- **Deleting Characters**

  Move the cursor to the right of the character to be deleted and press the DELETE Button. The character to the left of the cursor will be deleted and the cursor will move to the position of the deleted character.
  - Keeping the DELETE Button pressed will delete the characters to the left of the cursor continuously.
  - If the DELETE Button is pressed when the cursor is at the beginning of the first (top) line, the last character at the end of the last (bottom) line will be deleted.

- **Deleting All Characters on a Page**

  To delete all characters on a page, press the CLEAR Button together with the SHIFT Button. The cursor will return to the beginning of the first (top) line and the "■" marks will appear for 12 characters × 6 lines on the screen.

- **Moving Titles**

  By pressing the appropriate Cursor Button together with the SHIFT Button, the whole title on the screen can be moved up and down, right and left.
  Keeping one of the Cursor Buttons pressed will move the whole title continuously.

⇨ **Button:** The whole title moves to the right.

⇦ **Button:** The whole title moves to the left.

⇩ **Button:** The whole title moves down.

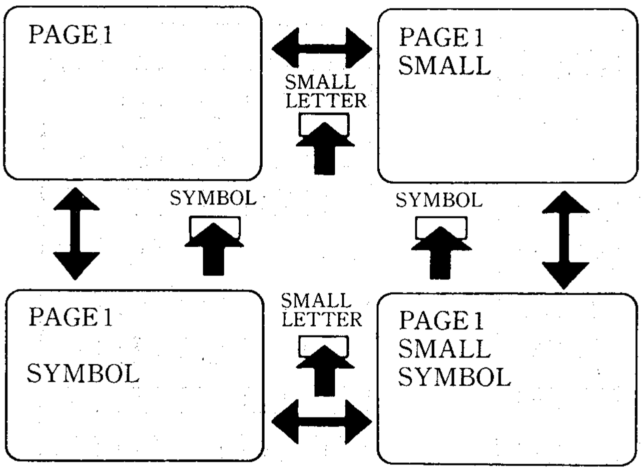
⇧ **Button:** The whole title moves up.

- **Inputting Spaces**

  To leave a space between words, press the SPACE Button. You can also create blank space by moving the cursor.

- **Confirmation of the Selected Input Mode**

  If the DELETE Button is pressed together with the SHIFT Button, the input mode will be displayed on the screen for confirmation.



- After a character has been input, the cursor will move to the right to the position for the next character.

- When moving titles, move them so that they do not leave the screen. The characters which are not on the screen will not be recorded in the normal title recording mode.

- **Changing Pages**

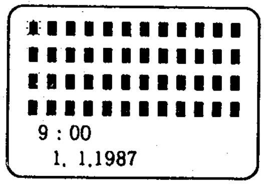
  To advance to the next page after composing a title on PAGE 1, press the PAGE Button.
  - After the indication "PAGE 2" is displayed in the upper left corner of the screen for about 1 second, the "■" marks will appear for 12 characters × 6 lines.
  - Pressing the PAGE Button changes the pages as shown below.

  → PAGE 1 → PAGE 2 → ... → PAGE 9 → PAGE A

- Pressing the PAGE Button together with the SHIFT Button changes the pages backward.

- **PAGE A**

  When PAGE A is reached while changing the pages, the "■" marks for 12 characters × 4 lines and the date and time are displayed.
  - It is not possible to move the title or to change the character size on PAGE A.



If the Date Selector is set to "DATE/CLOCK", the date and time will be displayed; if it is set to "DATE", only the date will be displayed under the title.

1-1-7. TITLE RECORDING

Recording composed titles during shooting.

1. Insert a tape into the VHS/VHS-C Movie and put the camcorder into the recording pause mode. (For details about the operation, read the Operating Instructions of the VHS/VHS-C Movie.)

2. Set the Mode Selector to "REC-TITLE".
   - When this switch is changed from "EDIT-TITLE" to "REC-TITLE", the page number followed by the title of that page (which was displayed in the "EDIT-TITLE" mode) appear on the screen. In this case, the " ■ " marks which appeared in the "EDIT-TITLE" mode will not appear on the screen.

3. Select the title page that you want to record.
   The pages can be changed in the same way as in the "EDIT-TITLE" mode. It is also possible to select the desired page directly, as described below on the right.
   - When changing the pages in the "REC-TITLE" mode, the page number indication does not appear.

4. Press the DISPLAY Button to remove the title from the screen.

5. Start shooting by pressing the Start/Stop Button on the VHS/VHS-C Movie. At the point where you want to superimpose the title, press the DISPLAY Button. To end the superimpose recording of the title (while letting the shooting continue), press the DISPLAY Button again.

• Changing the Character Size

Pressing the SIZE Button changes the size of all characters on the screen. The character size will be changed in the same order as in the "EDIT-TITLE" mode. It is not possible to change the character size line by line.

- Any change made in the character size in the "REC-TITLE" mode has no influence on the character size of the title memorized in the "EDIT-TITLE" mode.

• Moving Titles

To move the title, press the appropriate Cursor Button together with the SHIFT Button in the same way as in the "EDIT-TITLE" mode.

- Moving the titles in the "REC-TITLE" mode has no influence on the title positions memorized in the "EDIT-TITLE" mode.

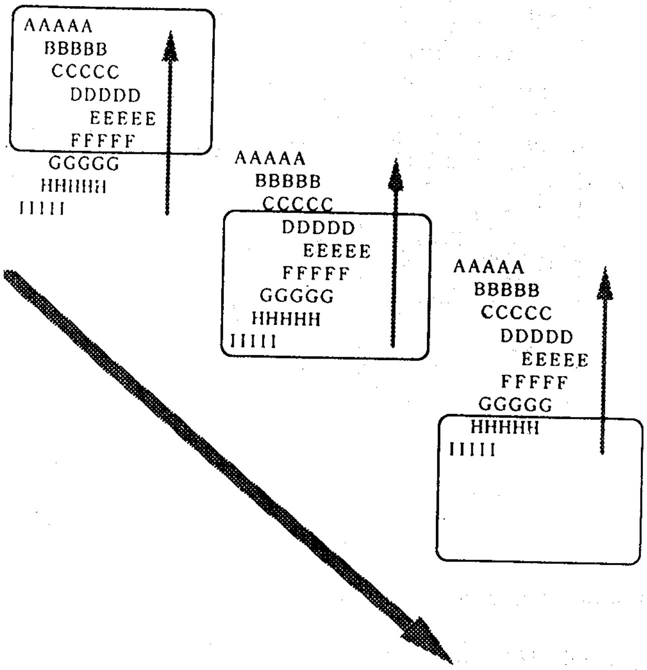
• How to Select the Desired Page Directly

Select the desired title page directly by pressing the corresponding Number Button (1 ~ 9) or the Letter Button "A".

- If the page or the mode is changed when the title is not displayed, the title will appear automatically.

1-1-8. SCROLL RECORDING

The Scroll Recording Function makes it possible to record the composed titles while scrolling them from the bottom to the top of the screen. The scrolling will be performed continuously from the selected page through PAGE 9.



• Checking the Pages to Be Used for Scrolling

Be sure to check the scroll screen in the "EDIT-TITLE" mode before performing the scroll recording. (See the next page.)

Perform the check page by page.

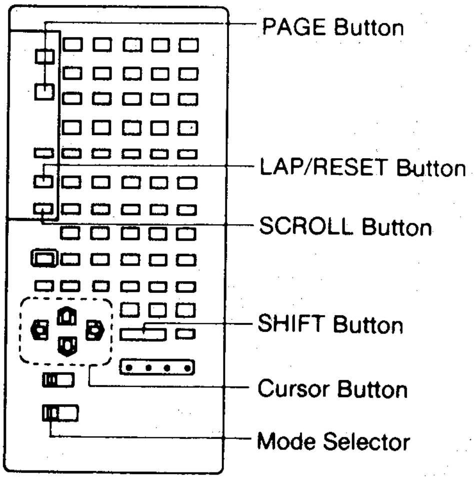
The capacity of the scroll screen is limited to 9 lines per page.

If the titles that were composed in the "EDIT-TITLE" mode use characters of a larger size than "M" or a combination of different character sizes, be careful because the characters which are not displayed on the screen will also be scrolled.

When preparing titles for scrolling, compose them with the character size "S" for 9 lines and then change them to the desired size, starting from the last line. In this way, the titles can be composed while also confirming the characters that will not be displayed on the screen.

Even if you move the title position when composing the titles, all titles will automatically start at the beginning (left side) of each line when they are scrolled. Therefore, compose the titles so that they start at the original position.

For the scroll recording, the buttons and the selector shown in the illustration below are used.



• Scrolling Preview

1. Set the Mode Selector to "EDIT-TITLE".
2. Press the SCROLL Button.
3. Scrolling preview will start and the lines 1 to 9 will appear at the bottom of the screen and scroll to the top until the last line has left the screen.
4. The screen will revert to the condition before scrolling.
5. Change to the next page and check it.
   - If the SCROLL Button is pressed in the middle of scrolling, the scrolling will stop and the character in the upper left corner of the screen will flash.
   - In this condition, you can correct the letters and change the character size.
   - To continue scrolling, press the SCROLL Button again.
   - To stop the scrolling preview and return to the beginning of the scrolled title, press the LAP/RESET Button.
     - The screen will return to the former condition and stop.
     - To start scrolling again, press the SCROLL Button.

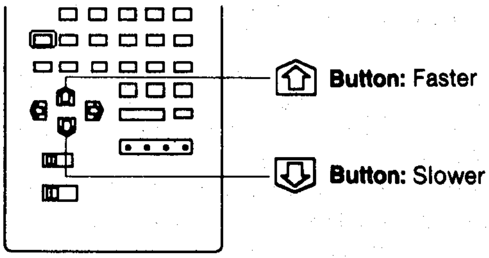
• Recording Procedure

1. Set the Mode Selector to "REC-TITLE".
   - When this switch is changed from "EDIT-TITLE" to "REC-TITLE", the title page which was displayed in the "EDIT-TITLE" mode will appear.
2. Call up the title page from which you want to start scrolling by pressing the PAGE Button repeatedly.
   - You can also select the desired page directly (see page 18).
3. Press the SCROLL Button.
   - The title on the screen will disappear and the unit will be in the scroll standby mode. In this mode, it is not possible to change the page or to select the page directly.
4. Press the START/STOP Button of the Character Generator.
   The scrolling will start.
   - PAGE A cannot be scrolled.
     Even if PAGE A is selected, the scrolling will start from PAGE 1.
   - To interrupt the scrolling at any desired point, press the START/STOP Button.
     To continue the scrolling, press the START/STOP Button again.

- When the last line of PAGE 9 has left the top of the screen, the scrolling will finish automatically. At this time, no title will be displayed on the screen.
- If the LAP/RESET Button is pressed during scrolling, the scrolling will be reset and the start page will be displayed.

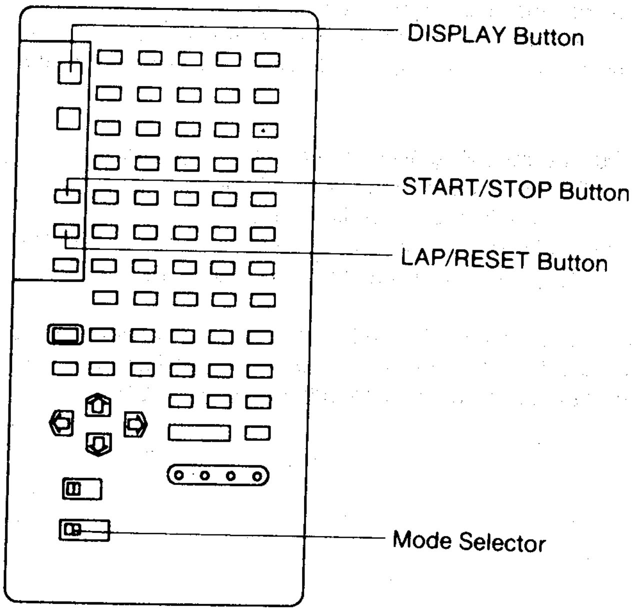
• Changing the Scrolling Speed

The scrolling speed can be changed in 6 steps in both the "EDIT-TITLE" mode and the "REC-TITLE" mode by pressing the SCROLL Button and then the appropriate Cursor Button.
- The changed scrolling speed will be memorized.



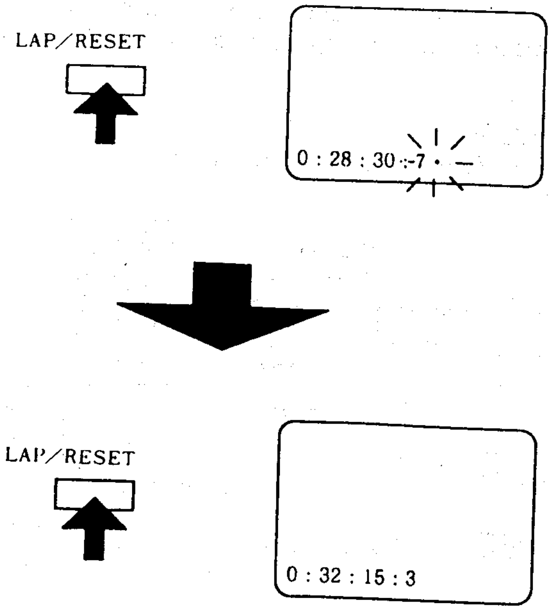
1-1-9. HOW TO USE THE STOP WATCH

This Character Generator also features a stopwatch function that counts and displays the elapsed time in 1/10-second increments.
For the stopwatch operation, the buttons and the selector shown in the illustration below are used.



1. Set the Mode Selector to "STOPWATCH".
   - The stopwatch time will be displayed in the lower left corner of the screen.
2. Press the START/STOP Button.
   - The stopwatch will start working.
   - It can count and display the time up to 9:59'59"9.
3. To stop the stopwatch, press the START/STOP Button again.
   - The stopped time will be displayed on the screen.
4. To continue the counting from that position, press the START/STOP Button again.
5. To reset the stopwatch to zero, press the START/STOP Button to stop the counting and then press the LAP/RESET Button.

- By pressing the DISPLAY Button, the stopwatch indication can be deleted from the screen and be displayed again.
  - The stopwatch is working even if it is not displayed.



- **Lap Time Indication**

If the LAP/RESET Button is pressed while the stopwatch is working, the counter will stop and a blinking dot will appear on the right of the counter indication. Pressing the LAP/RESET Button again will display the actual ongoing count again. The stopwatch continues working while the lap time is displayed. If you press the START/STOP Button in this condition, the dot indicator on the right of the counter indication will stop blinking and be lit and the time counter will stop.

- **Moving the Display Position**

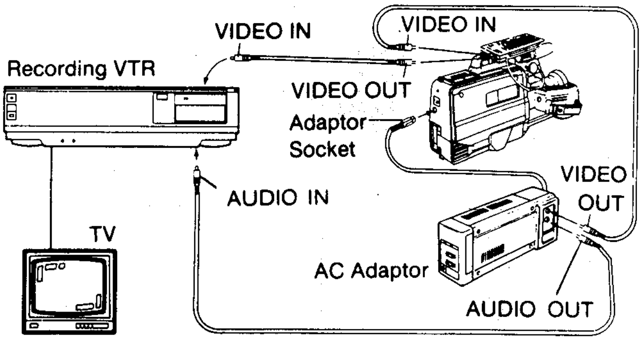
The stopwatch indication can also be moved up and down, right and left, just like the titles. Press the appropriate Cursor Button while pressing the SHIFT Button. The changed display position will be memorized even if the mode is changed.

1-1-10. SUPERIMPOSE TITLE RECORDING DURING DUBBING

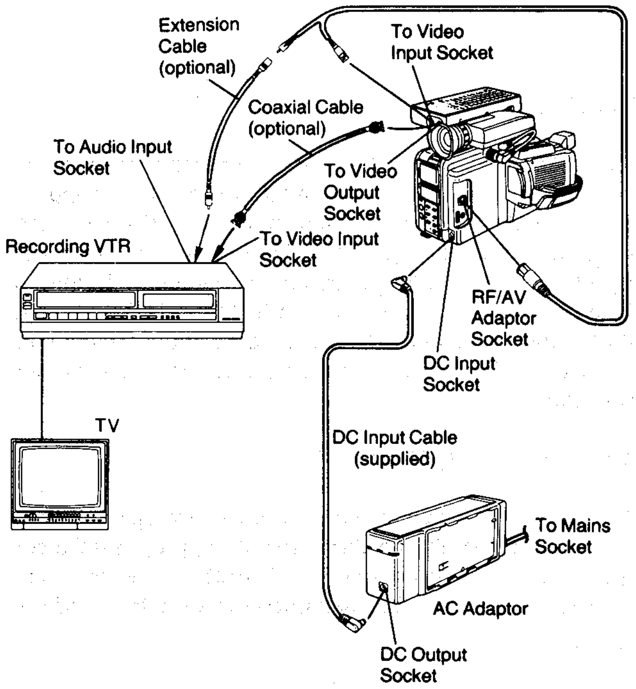
It is possible to add titles to already recorded scenes by superimposing them during dubbing from the VHS/VHS-C Movie.

Connections

- Carefully read the operating instructions of all units to be used.


VIDEO IN
VIDEO IN
Recording VTR
VIDEO OUT
Adaptor Socket
VIDEO OUT
AUDIO IN
TV
AC Adaptor
AUDIO OUT

Connections


AV Output Cable (supplied)
Extension Cable (optional)
To Video Input Socket
Coaxial Cable (optional)
To Audio Input Socket
To Video Output Socket
Recording VTR
To Video Input Socket
RF/AV Adaptor Socket
DC Input Socket
TV
DC Input Cable (supplied)
To Mains Socket
AC Adaptor
DC Output Socket

Operation

1. Turn on all connected units.
2. Insert a recorded tape into the VHS/VHS-C Movie and locate the scene onto which you want to superimpose a title, and put the camcorder in the playback pause mode just slightly before that scene.
3. Put the recording VTR in the recording pause mode.
4. Set the Mode Selector on the Character Generator to "REC-TITLE".
   - To superimpose the stopwatch or the date, set the Mode Selector to "STOPWATCH" or "AUTO DATE".
5. Select the title page or the mode to be used for the superimpose recording. Confirm that the title and/or the auto date indication or the stopwatch is displayed on the TV screen.
6. Put the recording VTR in the recording mode and the VHS/VHS-C Movie in the playback mode.
   - The superimpose recording will start.
   - To finish the dubbing, press the Stop Button on both the VHS/VHS-C Movie and the recording VTR.

- To delete the title while letting the dubbing continue, press the DISPLAY Button. When you want to perform scrolling, refer to the procedure for scroll recording (p. 21).

2. ELECTRICAL ADJUSTMENT PROCEDURES

2-1. VW-CG2EN Section

2-1-1. TEST EQUIPMENTS

The following equipments are required for the adjustments.

(1) Oscilloscope
Dual Trace,30 MHz,2mV/Div
10:1 or 1:1 Prove

(2) Frequency Counter

(3) Monitor TV

2-1-2. HOW TO READ THE ADJUSTMENT PROCEDURES

TP ---- Connecting point of Mesuring Equipment.
ADJ. ---- Component being adjusted.
M.EQ. ---- Mesuring Equipment.
SPEC. ---- Specifications for adjustment or Method of adjustment.

2-1-3. CHARACTER POSITION ADJUSTMENT

TP	ADJ.	M.EQ.
VIDEO OUT	VR 1	MONITOR
SPEC		
CHARACTER IS CENTER		

(1) Connect the VW-CG1 to VHS/VHS-C Movie then set the Mode Selector to REC-TITLE Mode and turn on the VHS/VHS-C Movie.
(2) Press the ALL RESET Key and adjust VR1 so that character portion is center.

2-1-4. CHARACTER SPHERE ADJUSTMENT

TP	ADJ.	M.EQ.
VIDEO OUT TP 2	VR 2	OSCILLOSCOPE
SPEC		
T=1.6 ± 0.5μsec		

(1) Connect the VW-CG1 to VHS/VHS-C Movie then set the Mode Selector to REC-TITLE and turn on the VHS/VHS-C Movie.
(2) Adjust VR2 so that the period "T" becomes 1.6+-0.5usec.

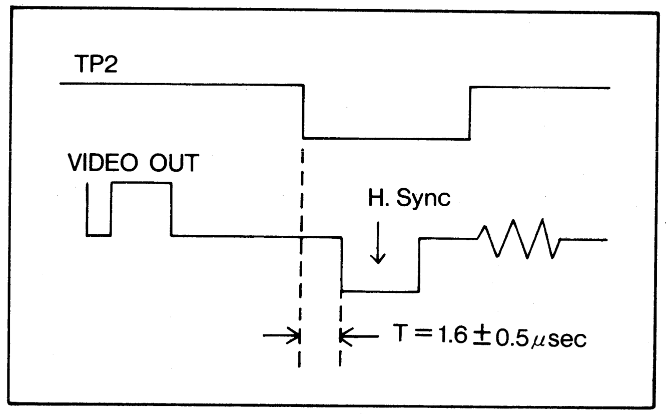


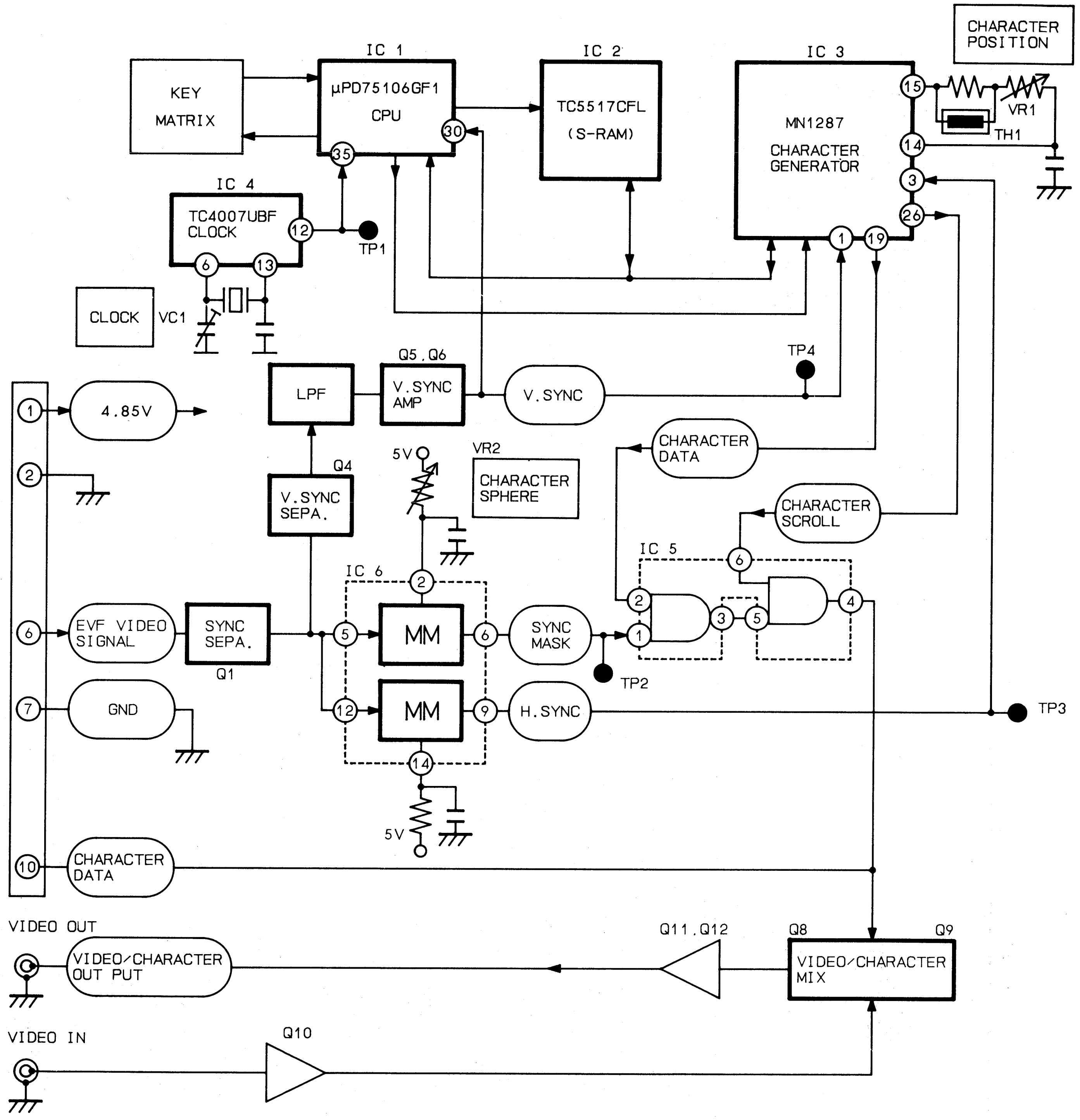
Fig. E1

2-1-5. CLOCK FREQUENCY ADJUSTMENT

TP	ADJ.	M.EQ.
TP 1	VC 1	FREQUENCY COUNTER
SPEC		
40960000 ± 1Hz		

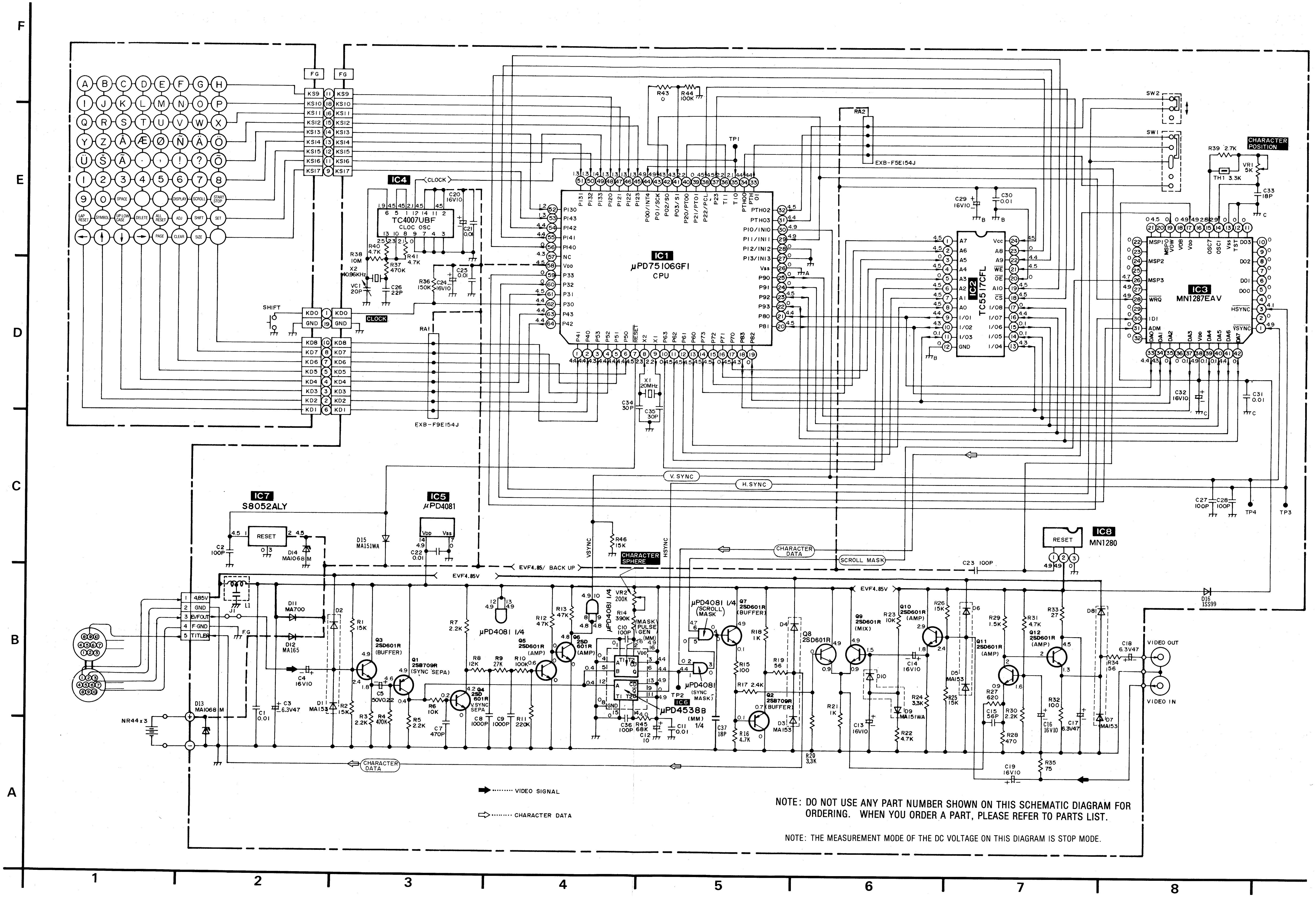
(1) Connect the VW-CG1 to VHS/VHS-C Movie then turn on the VHS/VHS-C Movie.
(2) Adjust VC1 so that frequency becomes 40960000+-1Hz.

3. CHARACTER GENERATOR BLOCK DIAGRAM


CHARACTER POSITION
IC 1
µPD75106GF1
CPU
IC 2
TC5517CFL
(S-RAM)
IC 3
MN1287
CHARACTER GENERATOR
KEY MATRIX
VR1
TH1
IC 4
TC4007UBF
CLOCK
TP1
CLOCK
VC1
Q5,Q6
V.SYNC AMP
V.SYNC
LPF
TP4
4.85V
Q4
V.SYNC SEPA.
5V
VR2
CHARACTER SPHERE
CHARACTER DATA
CHARACTER SCROLL
IC 5
IC 6
EVF VIDEO SIGNAL
SYNC SEPA.
Q1
MM
MM
SYNC MASK
TP2
GND
H.SYNC
TP3
CHARACTER DATA
VIDEO OUT
VIDEO/CHARACTER OUT PUT
Q11,Q12
Q8
Q9
VIDEO/CHARACTER MIX
VIDEO IN
Q10

BACK UP	APPLOX·3.7V~4.8V
CPU RESET	VDD LESS THAN 3.3V
AUTO DATE INITIAL VALUE	12:00 1987. 1. 1
STOP WATCH	MAXIMUM 9:59:59:9 MINIMUM 1/10 sec.

4. CHARACTER GENERATOR SCHEMATIC DIAGRAM

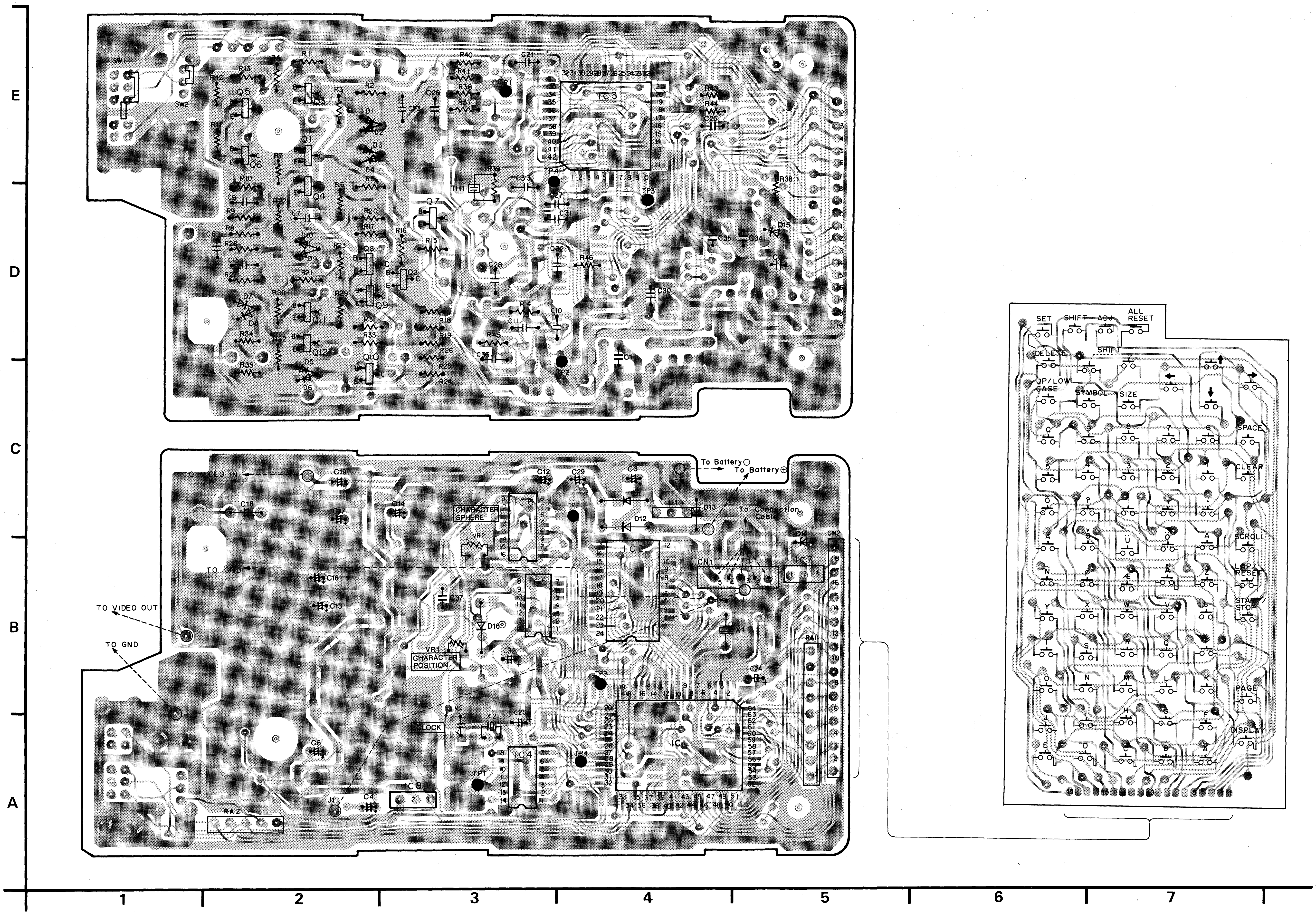


IC1
μPD75106GF1
CPU
IC2
TC5517CFL
IC3
MN1287EAV
IC4
TC4007UBF
CLOC OSC
CLOCK
IC5
μPD4081
IC6
μPD4538B
(MM)
1/4
IC7
S8052ALY
RESET
IC8
MN1280
RESET
X1
20MHz
X2
4096KHz
RA1
EXB-F9E154J
RA2
EXB-F5E154J
SW1
SW2
CHARACTER POSITION
VR1
5K
TH1 3.3K
R39 2.7K
SHIFT
CLOCK
V.SYNC
H.SYNC
VSYNC
HSYNC
CHARACTER SPHERE
CHARACTER DATA
SCROLL MASK
EVF4.85/ BACK UP
EVF4.85V
Q1
2SB709R
(SYNC SEPA)
Q2
2SB709R
(BUFFER)
Q3
2SD601R
(BUFFER)
Q4
2SD601R
V.SYNC SEPA
Q5
2SD601R
(AMP)
Q6
2SD601R
(AMP)
Q7
2SD601R
(BUFFER)
Q8
2SD601R
Q9
2SD601R
(MIX)
Q10
2SD601R
(AMP)
Q11
2SD601R
(AMP)
Q12
2SD601R
(AMP)
μPD4081 1/4
(SCROLL MASK)
μPD4081
(SYNC MASK)
MASK PULSE GEN (MM)
VR2
200K
VIDEO OUT
VIDEO IN
NR44 x 3
TP1
TP2
TP3
TP4
L1
J1
FG
4.85V
GND
EVFOUT
F.GND
TITLER
D15
MA151WA
D14
MA1068M
D13
MA1068M
D11
MA700
D12
MA165
D16
1SS99
D9
MA151WA
D3
MA153
D5
MA153
D7
MA153
▶······· VIDEO SIGNAL
⇨······· CHARACTER DATA
F
E
D
C
B
A
1
2
3
4
5
6
7
8

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

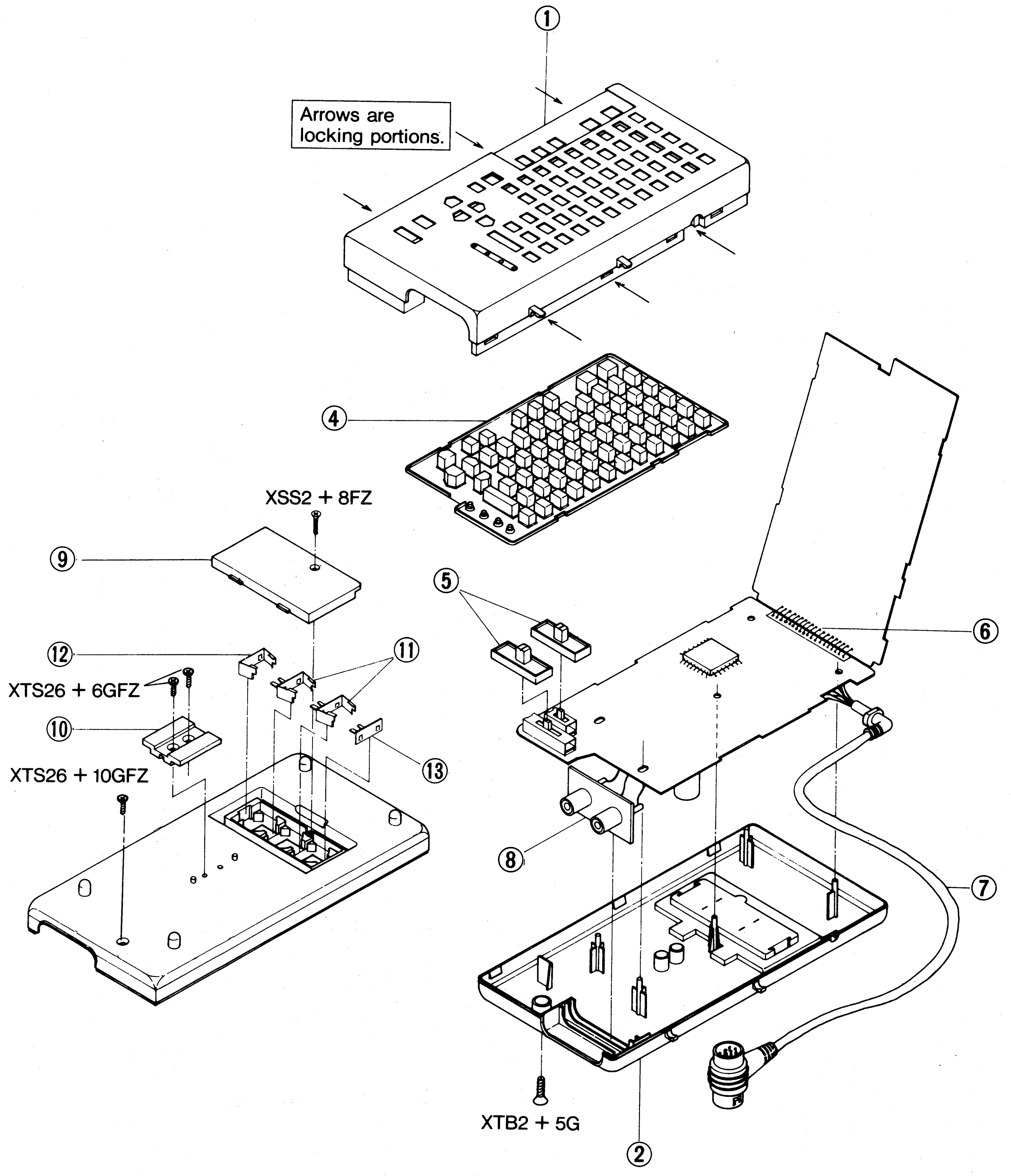
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

5. MAIN C.B.A (VEP66051E)

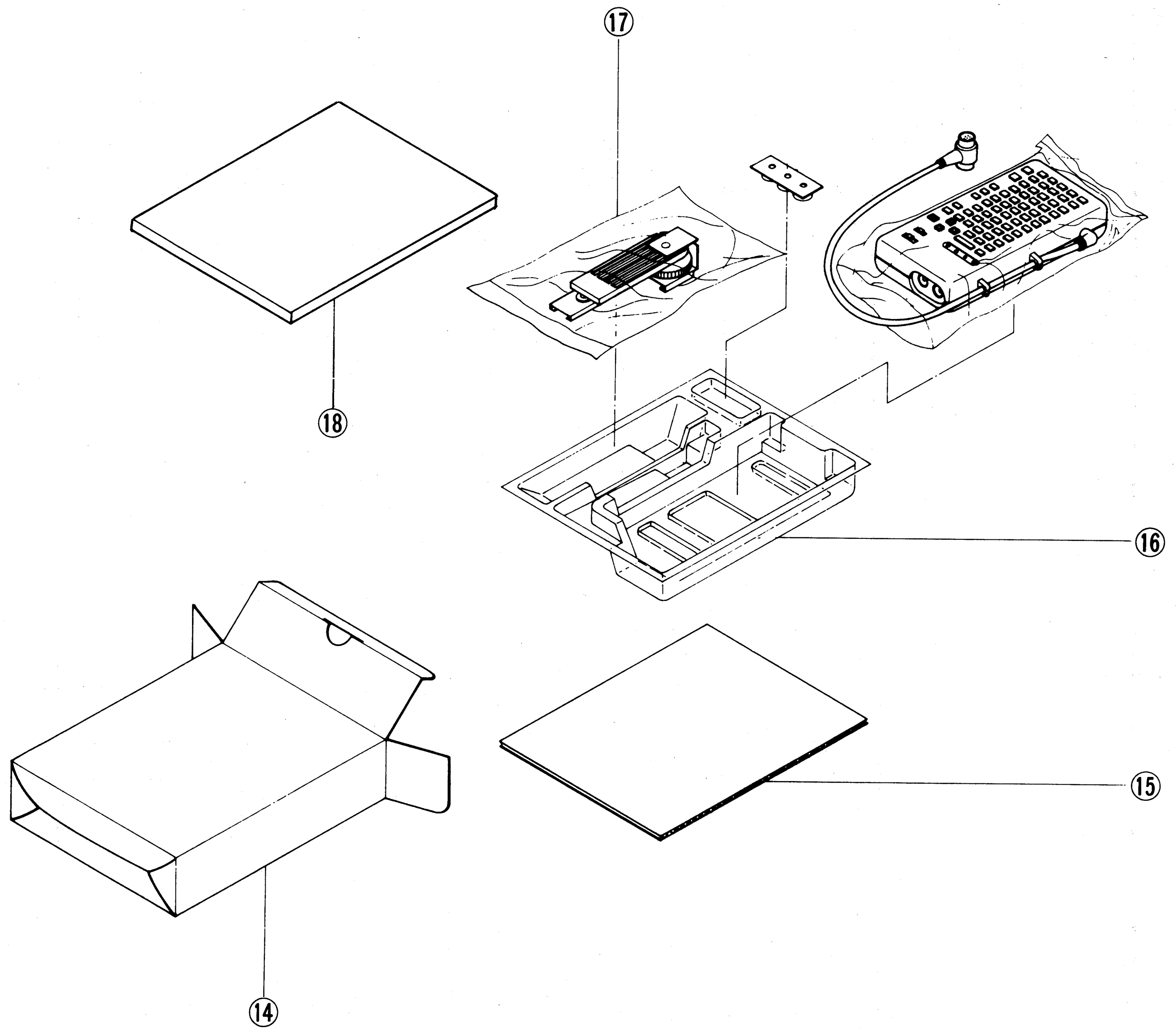

E
D
C
B
A
1
2
3
4
5
6
7
SW1
SW2
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
TP1
TP2
TP3
TP4
TH1
CN1
CN2
RA1
RA2
X1
X2
VC1
L1
J1
TO VIDEO IN
TO GND
TO VIDEO OUT
TO GND
To Battery⊖
To Battery⊕
To Connection Cable
-B
CHARACTER SPHERE
VR2
VR1
CHARACTER POSITION
CLOCK
SET
SHIFT
ADJ
ALL RESET
DELETE
SHIFT
UP/LOW CASE
SYMBOL
SIZE
SPACE
CLEAR
SCROLL
LAP/RESET
START/STOP
PAGE
DISPLAY

6. EXPLODED VIEWS

❶ CHARACTER GENERATOR SECTION (VW-CG2E)


①
Arrows are locking portions.
④
XSS2 + 8FZ
⑨
⑤
⑥
⑫
⑪
XTS26 + 6GFZ
⑩
⑬
XTS26 + 10GFZ
⑧
⑦
XTB2 + 5G
②

❷ CHARACTER GENERATOR PACKING SECTION (VW-CG2E)



PARTS LIST
MODEL NO.: NV-MS50E/EG/B/EP/EW : VW-AMC2E/B : VW-CG2E
1. NV-MS50E/EG/B/EP/EW Mechanical Replacement Parts List

Note:1.* Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark <!> have the special characteristics for safety. When replacing any of these components,use only the same type.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
**********		NV-MS50E/EG/			
		B/EP/EW			
1(1)		VMD1100	LOADING GUIDE (T)	1	
2(1)		VXL1771	EJECT LEVER UNIT	1	
3(1)		VMD1077	LOADING GUIDE (S)	1	
4(1)		VXA3033	CASSETTE SUPPORT	1	
			PLATE UNIT		
5(1)		VMA7766	CASSETTE STAND (T)	1	
6(1)		VXA3052	LOADING GEAR	1	
			BASE UNIT		
7(1)		VDG0410	LOADING GEAR (S)	1	
8(1)		VDG0411	LOADING GEAR (T)	1	
9(1)		VXA3037	LOADING RING (T) UNIT	1	
10(1)		VDG0409	RING GUIDE GEAR (T)	2	
11(1)		VMD1263	RING GUIDE (2)	1	
12(1)		VDG0499	TERMINAL GEAR	1	
13(1)		VMD1265	RING LIMITER	1	
14(1)		VXA3038	LOADING RING (S) UNIT	1	
15(1)		VDG0408	RING GUIDE GEAR (S)	1	
16(1)		VMD1262	RING GUIDE (1)	1	
17(1)		VMD1264	RING GUIDE (3)	1	
18(1)		VEM0284	CAPSTAM MOTOR UNIT	1	
19(1)		VEK3345	STATOR UNIT	1	
20(1)		VDB0898	UPPER BEARING	1	
21(1)		VDB0899	UNDER BEARING	1	
22(1)		VMB1173	THRUST SPRING	1	
23(1)		VMB1705	CAM SPRING	1	
24(1)		VXL1772	PRESSURE LEVER	1	
25(1)		VMX1042	CUT WASHER (B)	2	
26(1)		VXA3771	V STOPPER BASE UNIT	1	
27(1)		VMD1168	V STOPPER BASE	1	
28(1)		VMC0360	PRESSURE PLATE	1	
29(1)		VDP1282	IMPEDANCE ROLLER	1	
30(1)		VMD1407	SUPPLY UPPER LIMITER	1	
31(1)		VXA3380	SHAFT HOLDER (T)	1	
32(1)		VMX1061	CUT WASHER (A)	9	
33(1)		VXA3064	SHAFT HOLDER S1 UNIT	1	
34(1)		VXJ0062	S1 ROLLER POST UNIT	1	
35(1)		VHD0392	SCREW	1	
36(1)		VXA3042	LOADING GUIDE UNIT	1	
37(1)		VMD1272	LOADING GUIDE	1	
38(1)		TLN107A	SENSOR LED	1	
39(1)		VHN0047	NUT	1	
40(1)		VMX1535	WASHER	1	
41(1)		VDP1209	S1 ROLLER	1	
42(1)		VMX1628	S1 COLLAR	1	
43(1)		VMX1335	S1 LOWER LIMITER	1	
44(1)		VMB1785	ERASE HEAD SPRING	1	
45(1)		VXA3053	CASSETTE STAND (S) 1	1	
			UNIT		
46(1)		VXP0891	DAMPER UNIT	1	
47(1)		VEK3446	END SENSOR UNIT	1	
48(1)		VBS0045	FE HEAD	1	
49(1)		VML2177	ERASE HEAD LEVER	1	
50(1)		VXL1658	TENSION ARM UNIT	1	
51(1)		VXR0175	SUPPLY REEL TABLE	1	
52(1)		VMB1868	TENSION SPRING	1	
53(1)		VXZ0249	TENSION BAND UNIT	1	
54(1)		VML2281	BAND ARM	1	
55(1)		VMD1082	BAND ADJUSTMENT PIECE	1	
56(1)		VHD0390	BAND ARM SCREW	1	
57(1)		VXL1789	TAPE GUIDE ARM F UNIT	1	
58(1)		VMB1707	TAPE GUIDE ARM SPRING	1	
59(1)		VEM0317	LOADING MOTOR (1)	1	
			UNIT		
60(1)		VXA3374	LOADING MOTOR	1	
			BRACKET UNIT		
61(1)		VXA3375	MOTOR GEAR BASE UNIT	1	
62(1)		VHD0442	WORM ADJUSTMENT SCREW	1	
63(1)		VDG0495	MOTOR GEAR A	1	
64(1)		VDG0494	MOTOR GEAR B	1	
65(1)		VDK0017	CONTROL CAM	1	
66(1)		VXP0904	SECTOR GEAR UNIT	1	
67(1)		VHN0065	T3 POST NUT	1	
68(1)		VMX1472	T3 POST FLANGE	1	
69(1)		VMX1251	P1 SPACER	1	
70(1)		VMX1471	T3 POST BOTTOM	1	
71(1)		VMB1716	T3 POST SPRING	1	
72(1)		VED0088	A/C HEAD (1) UNIT	1	
73(1)		VXA3671	A/C HEAD PLATE UNIT	1	
74(1)		VXA3382	A/C HEAD BASE UNIT	1	
75(1)		VHN0133	A/C HEAD ADJUST SCREW	1	
76(1)		VMB1995	A/C HEAD SPRING	1	
77(1)		VES0416	MODE SELECT SWITCH	1	
78(1)		VXL1675	TAPE GUIDE LEVER	1	
			(2) UNIT		
79(1)		VML2191	TAPE GUIDE LEVER (1)	1	
80(1)		VMB1971	TAPE GUIDE LEVER SPRING	1	
81(1)		VMB1872	TAPE GUIDE LEVER	1	
			SPRING (2)		
82(1)		VXP0922	IDLER UNIT	1	
83(1)		VXP0890	CLUTCH GEAR (T) UNIT	1	
84(1)		VDG0407	TAKEUP REEL GEAR	1	
85(1)		VML2026	SOFT BRAKE ARM	1	
86(1)		VXL1670	SOFT BRAKE UNIT	1	
87(1)		VMB1710	SOFT BRAKE SPRING (1)	1	
88(1)		VMB1871	SOFT BRAKE SPRING (2)	1	
89(1)		VMA7764	H.A PLATE	1	
90(1)		VEE5010	DEW SENSOR UNIT	1	
91(1)		VDV0170	DRIVE BELT	1	
92(1)		VES0470	CASSETTE DOWN SW	1	
93(1)		VMD1266	CASSETTE DOWN SW	1	
			HOLDER		
94(1)		VMA7112	MR SHIELD COVER	1	
95(1)		VMD1212	T3 POST CAP	1	
96(1)		VSC2604	HI-FI HEAD AMP SHIELD	1	
			(UPPER)		
97(1)		VHD0389	CYLINDER SCREW	4	
98(1)		VXS0077	EARTH BRUSH UNIT	1	
99(1)		VXL1848	UPPER RT (S) ARM UNIT	1	
100(1)		VMA7801	STATOR ARM (2)	1	
101(1)		VEG0719	CYLINDER UNIT	1	<!>
102(1)		VEH0445	UPPER CYLINDER UNIT	1	<!>
103(1)		VET0081	UPPER RT (R) UNIT	1	
104(1)		VHD0288	UPPER CYLINDER SCREW	2	
105(1)		VHD0443	UPPER RT (R) SCREW	2	
106(1)		VXA3376	CASSETTE UP UNIT	1	
107(1)		VMB1714	LOADING RING (S) SPRING	1	
108(1)		VSH0040	S-TAPE DETECT SW	1	
109(1)		VST0099	SAFETY TAB SW	1	
110(1)		VML2289	OPEN LEVER	1	
111(1)		VXL1676	OPEN SLIDE LEVER (1)	1	
			UNIT		
112(1)		VMB1721	OPEN SLIDE LEVER	1	
			SPRING		
113(1)		VMA7772	HOLDER STAY (F)	1	
114(1)		VMA7771	HOLDER STAY (R)	1	
115(1)		VXA2959	CATCH PLATE (T) UNIT	1	
116(1)		VXA2958	CATCH PLATE (S) UNIT	1	
117(1)		VMB1860	LOCK SPRING	1	
118(1)		VMB1723	SAFETY SPRING (S)	1	
119(1)		VMB1824	SPRING (S)	1	
200(2)		VDL0170	IR CUT FILTER	1	
201(2)		VMP1790	AWT FIXING ANGLE	1	
202(2)		VMP1810	AWT HOOK SPRING	1	
203(2)		VWJ0341	AWT FLEXIBLE CORD	1	
204(2)		VGQ1660	IR SPACER	1	
205(2)		VXA3672	HI-FI AUDIO BARRIER	1	
			UNIT		
206(2)		VHD0398	SENSOR SCREW	2	
207(2)		VMP2064	CAMERA FIXING ANGLE	1	
208(2)		VSC2575	SENSOR FRAME	1	
			SHIELD PLATE		
209(2)		VWJ0305	PROCESS FLEXIBLE CORD	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
210(2)		VJF0654	SENSOR FRAME	1	
211(2)		VMD1256	SENSOR C.B.A. FRAME	1	
212(2)		VXW0027	LENS UNIT	1	
213(2)		VDW0088	FOCUS RING	1	
214(2)		VEM0318	FOCUS MOTOR UNIT	1	
215(2)		VEM0319	ZOOM MOTOR UNIT	1	
216(2)		VGF0247	FOCUS FASTENER	1	
217(2)		VJF0661	POSITION SENSOR HOLDER	1	
218(2)		VXL1635	IRIS UNIT	1	
219(2)		VXQ0057	LENS (1) UMIT	1	
220(2)		VXP1118	LENS (2) UNIT	1	
221(2)		VDL0144	CHRYSTAL FILTER	1	
222(2)		VMX1276	CCD CUSHION	1	
223(2)		VXQ0017	ACTUATER	1	
224(2)		VEK4214	CCD UNIT	1	
225(2)		MN3761F	CCD	1	
226(2)		VMA7183	CCD PLATE	1	
227(2)		VWJ0340	CCD FLEXIBLE CORD	1	
300(3)		VHD0439	SCREW (A)	2	
301(3)		VMD1268	SPACER	1	
302(3)		VSC2608	VIDEO HEAD AMP SHIELD (UPPER)	1	
303(3)		VHD0451	SCREW	1	
304(3)		VHD0395	SCREW	1	
305(3)		VMX1332	SCREW SPACER	1	
306(3)		VYK2515	SIKE CASE (R) UNIT	1	
307(3)		VMP1793	SUPPORT ANGLE	1	
308(3)		VML2156	SAFETY LEVER	1	
309(3)		VMB1848	SAFETY SPRING	1	
310(3)		VYK2514	TOP CASE UNIT	1	
311(3)		VMC0400	E.V.F. SHOE SPRING	1	
312(3)		VMP2063	E.V.F. SHOE	1	
313(3)		VGP2271	CASSETTE COVER UNIT	1	
314(3)		VKW1144	LENS COVER	1	
315(3)		VKF1142	BATTERY LID	1	
316(3)		VHD0437	SCREW	1	
317(3)		VDW0089	LENS FOOD	1	
318(3)		VYK2518	SIDE CASE (L) UNIT	1	
319(3)		VGH2002	BATTERY NAME PLATE	1	
320(3)		VGQ1611	E.V.F. CORD HOLDER	1	
321(3)		VMP1789	FIXING ANGLE (B)	1	
322(3)		VMP1894	FIXING ANGLE (A)	1	
323(3)		VMP2043	SHOE FIXING ANGLE	1	
324(3)		VMP2160	BELT SUPPORT ANGLE	1	
325(3)		VMP1989	SHOULDER STRAP ANGLE (UPPER)	1	
326(3)		VMD1344	TRIPOD FIXING BRACKET	1	
327(3)		VMP1355	SHOULDER STRAP ANGLE (LOWER)	1	
328(3)		VKC0347	BATTERY LOCK HINGE	1	
329(3)		VMP1787	GRIP BELT ANGLE	1	
330(3)		VMB1847	BATTERY LOCK SPRING (A)	1	
331(3)		VMB1861	BATTERY LOCK SPRING (B)	1	
332(3)		VGU4388	BATTERY LOCK KNOB	1	
333(3)		VGQ1590	BATTERY LOCK HOLDER	1	
334(3)		VGQ1591	BATTERY LOCK	1	
335(3)		VGQ1592	ZOOM BUTTON HOLDER	1	
336(3)		VGU4389	ZOOM BUTTON	1	
337(3)		VMG0462	ZOOM RUBBER SWITCH	2	
338(3)		VGQ1765	ZOOM BUTTON SHEET	1	
339(3)		VYK2318	BATTERY TERMINAL UNIT	1	
340(3)		VMC0403	BATTERY TERMINAL PLATE	1	
341(3)		VGQ1608	BATTERY TERMINAL HOLDER	1	
342(3)		VYK2520	GRIP BELT HOOK COVER UNIT	1	
343(3)		VMZ1348	SHIELD BARRIER	1	
344(3)		VEK4297	MIC UNIT	1	
345(3)		VGQ1610	GRIP BELT SUPPORT ANGLE	1	
346(3)		VYC0283	GRIP BELT UNIT	1	
347(3)		VGQ1349	HOOD STRAP	1	
348(3)		VKF1196	HOOD CAP	1	
349(3)		VMC0241	MIC SHOE SPRING	1	
350(3)		VMP1079	MIC SHOE	1	
351(3)		VMP1833	MIC SHOE ANGLE	1	
352(3)		VGQ1796	SUB REC BUTTON HOLDER	1	
353(3)		VGU4417	SUB REC BUTTON	1	
354(3)		VMZ1345	SUB S/S BARRIER	1	
355(3)		VMG0358	SUB S/S RUBBER SWITCH	1	
356(3)		VHD0440	MAIN SCREW	2	
357(3)		VWJ0351	SUB OPERATION FLEXIBLE CORD	1	
358(3)		VMP1812	JACK FIXING ANGLE	1	
359(3)		VGQ1593	JACK HOLDER	1	
360(3)		VYK2517	VTR OPERATION CASE UNIT	1	
361(3)		VGU4610	VTR OPERATION BUTTON	1	
362(3)		VKM1894	VTR OPERATION CASE	1	
363(3)		VGH2115	VTR OPERATION PANEL	1	
364(3)		VGU4611	EJECT BUTTON	1	
365(3)		VGU4612	POWER SWITCH KNOB	1	
366(3)		VGU4613	SELECT KNOB	2	
367(3)		VMB1993	POWER SWITCH SPRING	1	
368(3)		VGL0390	PANEL LIGHT	3	
369(3)		VJR0522	CONTACT PIECE	3	
370(3)		VMZ1371	SHIELD PLATE B	1	
371(3)		VJF0724	SPRING STOPPER	1	
372(3)		VKM1300	CURSOR	1	
373(3)		VGQ1607	CAMERA OPERATION HOLDER	1	
374(3)		VGU4678	SLIDE KNOB	2	
375(3)		VGU4679	CAMERA OPERATION BUTTON HINGE	1	
376(3)		VGU4680	IRIS ADJUSTMENT KNOB	1	
377(3)		VMZ1314	CAMERA OPERATION BARRIER	1	
378(3)		VKM1549	BATTERY BRACKET	1	
379(3)		VMC0399	BATTERY TERMINAL (B)	1	
380(3)		VMC0326	BATTERY TERMINAL (A)	1	
400(4)		VGL0359	PANEL LIGHT	1	
401(4)		VKM1789	E.V.F BOTTOM CASE	1	
402(4)		VGQ1693	E.V.F FOOT	1	
403(4)		VGU4395	LOCK RELEASE KNOB	1	
404(4)		VMC0405	SPRING (B)	1	
405(4)		VGQ1596	LOCK FIXING PLATE	1	
406(4)		VKC0323	ROTALY PIECE	1	
407(4)		VKC0355	ROTALY HOLDER (A)	1	
408(4)		VKC0356	ROTALY HOLDER (B)	1	
409(4)		VMP1358	STEEL BALL	2	
410(4)		VMC0337	SPRING	2	
411(4)		VYK2526	TOP CASE UNIT	1	NV-MS50B
411(4)		VYK2527	TOP CASE UNIT	1	NV-MS50E/EG/EP/EW
412(4)		VKM1080	EYESIGHT CORRECTION CASE	1	
413(4)		VGU3946	EYESIGHT CORRECTION RING	1	
414(4)		VMX1322	O RING	1	
415(4)		VJF0512	EYE CAP HOLDER	1	
416(4)		VMG0408	EYE CAP	1	
417(4)		VDL0145	E.V.F. LENS	1	
418(4)		VJF0511	LENS HOLDER	1	
419(4)		VEK3941	10P CORD	1	
420(4)		VEE4789	CRT SOKET UNIT	1	
421(4)		ELY07V570A	DY	1	
422(4)		M01JVV47WB	CRT	1	
423(4)		VGF0300	CRT MASKING	1	
424(4)		VJF0657	CRT HOLDER	1	
425(4)		VMX1462	CRT RUBBER	1	
500(5)		VQT3108	OPERATING INSTRUCTIONS	1	NV-MS50B<!>
500(5)		VQT3109	OPERATING INSTRUCTIONS	1	NV-MS50EP<!>
500(5)		VQT3112	OPERATING INSTRUCTIONS	1	NV-MS50EP<!>
501(5)		VPG4621	PACKING	1	NV-MS50B
501(5)		VPG4623	PACKING	1	NV-MS50EP
502(5)		VPN1994	CUSHION (R)	1	NV-MS50EP/B
503(5)		VPN1995	CUSHION (L)	1	NV-MS50EP/B
505(5)		VPK1002	ACCESSORIES BOX	1	NV-MS50B
505(5)		VPK1004	ACCESSORIES BOX	1	NV-MS50EP
506(5)		VFA0078	AV OUTPUT CORD	1	NV-MS50EP/B
507(5)		VJA0453	4P CORD	1	NV-MS50EP/B
508(5)		VFC0472	SHOULDER STRAP	1	NV-MS50EP/B
509(5)		XEH1A1	EARPHONE	1	NV-MS50EP/B
510(5)		VJA0376	DIN RF CORD	1	NV-MS50EP/B
511(5)		VJA0401	DC OUTPUT CORD	1	NV-MS50EP/B
512(5)		VYC0096	KEY	1	NV-MS50EP/B
513(5)		VXQ0050	CASSETTE ADAPTOR	1	NV-MS50EP/B
550(6)		VQT3109	OPERATION INSTRUCTIONS	1	NV-MS50E/EG/EW<!>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			(ENGLISH/GERMAN/FRENCH)		
550(6)		VQT3112	OPERATION INSTRUCTIONS	1	NV-MS50E/EW<!>
			(SPANISH/DUTCH/ITALIAN)		
550(6)		VQT3113	OPERATION INSTRUCTIONS	1	NV-MS50E<!>
			(SWEDISH/DANISH/FINNISH)		
551(6)		VPG4622	PACKING	1	NV-MS50E
551(6)		VPG4621	PACKING	1	NV-MS50EG
551(6)		VPG4624	PACKING	1	NV-MS50EW
552(6)		VPN2290	CUSHION (UPPER)	1	NV-MS50E/EG/EW
553(6)		VPN2291	CUSHION (LOWER)	1	NV-MS50E/EG/EW
554(6)		VPN2399	ACCESSORIES BOX	1	NV-MS50E/EG/EW
555(6)		VPN1997	PAD (A)	1	NV-MS50E/EG/EW
556(6)		VFA0078	AV OUTPUT CORD	1	NV-MS50E/EG/EW
557(6)		VFC0472	SHOULDER STRAP	1	NV-MS50E/EG/EW
558(6)		XEH1A1	EARPHONE	1	NV-MS50E/EG/EW
559(6)		VJA0376	DIN RF CORD	1	NV-MS50E/EG/EW
560(6)		VJA0401	DC OUTPUT CORD	1	NV-MS50E/EG/EW
561(6)		VJA0453	4P CORD	1	NV-MS50E/EG/EW
562(6)		VPN2482	TOP PAD	1	NV-MS50E/EG/EW
563(6)		VXQ0050	CASSETTE ADAPTOR	1	NV-MS50E/EG/EW
			JIG & TOOLS		
		VFM8180H8PF	VHS-C ALIGNMENT TAPE	1	
		VFK0304	Y/C SEPARATOR	1	
		VFK0382	CAMERA HPLDER	1	
		VFK0431	CAMERA HOLDER ARM	1	
		VFK0432	HOLDER SPACER	1	
		XSN26+18	SCREW	2	
		VFK0374	COLOUR TEMP. CONV. FILTER	1	
		VFK0375	COLOUR TEMP. CONV. FILTER	1	
		VMX1304	CLEARANCE SPACER	1	
		VMS3504	ALIGNMENT SHAFT	1	
		VKM1049	DIFFUSION PLATE	1	
		VFKS0051	EXTENSION CABLE (3P)	1	
		VFKS0052	EXTENSION CABLE (5P)	1	
		VFK0430	EXTENSION CABLE (14P)	1	
		VFK0503	EXTENSION CABLE (5P)	1	
		VFK0380	EXTENSION CABLE (18P)	1	
		VFK0497	EXTENSION CABLE (6P)	1	
		VFKS0067	EXTENSION CABLE (22P)	1	
		VFKS0075	EXTENSION CABLE (16P)	1	
		VFKS0060	EXTENSION CABLE (2P)	1	
		VFK0499	EXTENSION CABLE (3P)	1	
		VFKS0074	CONNECTOR	1	
		VFK0335	RETAINING RING REMOVER	1	
		VFK0329	POST ADJUSTMENT SCREWDRIVER	1	
		VFK0343	CHECK LIGHT	1	
		VFK0326	HEX WRENCH SET	1	
		VFK27	HEAD CLEANING STICK	1	
		MOR265	MORLYTONE GREASE	1	

2. NV-MS50E/EG/B/EP/EW Electrical Replacement Parts List

Note:1.* Be sure to make your orders of replacement parts according to this list.
2.IMPORTANT SAFETY NOTICE
Components identified with the mark <!> have the special characteristics for safety. When replacing any of these components,use only the same type.
3.Unless otherwise specified,
All resistors are in OHMS ,K=1,000 OHMS. All capacitors are in MICRO-FARADS(uf),P=uuF.
4.The P.C.Board units marked width'■'show below the main assembled parts.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
***********		NV-MS50E/EG/			
		B/EW/EP			
			---CAMERA SECTION---		
		VEP23089A	PROCESS C.B.A.	1	(NLA)
		VEP22081A	SENSOR C.B.A.	1	(NLA)
		VEP28018C	AUTO FOCUS C.B.A.	1	(NLA)
		VEP22083A	AWT(3) C.B.A.	1	(NLA)
		VEP26047B	CAMERA OPERATION C.B.A.	1	(NLA)
		VEP30038A	FOCUS & ZOOM POSITION	1	(NLA)
			---E.V.F. SECTION---		
		VEP27038C	E.V.F. C.B.A.	1	(NLA)
			---VTR SECTION---		
		VEP06572A	MAIN C.B.A.	1	(NLA)<!>
		VEP03617A	LUMINANCE/CHROMINANCE	1	(NLA)
			C.B.A.		INCLUDING THE
					PAL JOG C.B.A.
					(VEP03616A),RF AMP
					C.B.A.(VEP03679A).
		VEP03616A	PAL JOG C.B.A.	1	(NLA)
		VEP03679A	RF AMP C.B.A.	1	(NLA)
		VEP04261A	HI-FI AUDIO C.B.A.	1	(NLA)
		VEP05132C	VIDEO HEAD AMP C.B.A.	1	(NLA)
		VEP05133B	HI-FI HEAD AMP C.B.A.	1	(NLA)
		VEP02318A	DRIVE C.B.A.	1	(NLA)
		VEP06515C	OPERATION C.B.A.	1	(NLA)
		VEK4033	SUB OPERATION C.B.A.	1	(NLA)

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		VEK4025	SUB REC C.B.A.	1	(NLA)
		VEK4024	ZOOM C.B.A.	1	(NLA)
		VEK3976	EARPHONE JACK C.B.A.	1	(NLA)
		VEK3970	START/STOP SW C.B.A.	1	(NLA)
		VEK3455	TAKE-UP REEL SENSOR C.B.A.	1	(NLA)
		VWJ0341	FLEXIBLE CARD	1	FP601-FP302
		VWJ0305	FLEXIBLE CARD	1	P3504-FP306
	■	VEP23089A	PROCESS C.B.A.		(NLA)
B301		VJS1948	CONNECTOR	1	
B305		VJS2574	CONNECTOR (FEMALE)	1	
			CAPACITORS		
C301		ECUM1H221JCV	C.CAPACITOR CH 50V 220P	1	
C303,04		ECST1CY105Z	T.CAPACITOR 16V 1U	2	
C305		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C306		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C307		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C308		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C309		ECUM1H680JCV	C.CAPACITOR CH 50V 68P	1	
C310		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C311		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C312		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C313		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C314		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C315		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C316,17		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C318,19		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C320,21		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	2	
C322		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C323		ECSF0JE226	T.CAPACITOR 6.3V 22U	1	
C324		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C325		ECEV1HA2R2	E.CAPACITOR 50V 2.2U	1	
C326		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C327		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C328,29		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C330		ECSF1AE226	T.CAPACITOR 10V 22U	1	
C331		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C332		ECEV1HA010	E.CAPACITOR 50V 1U	1	
C333		ECEV1HA3R3	E.CAPACITOR 50V 3.3U	1	
C334		ECUM1H101JCV	C.CAPACITOR CH 50V 100P	1	
C335		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C336,37		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C338,39		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	2	
C340,41		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C342		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C343		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C344		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C345		ECEV1CAN4R7	E.CAPACITOR 16V 4.7U	1	
C346		ECST0JB475Z	T.CAPACITOR 6.3V 4.7U	1	
C348		ECEV1CA100	E.CAPACITOR 16V 10U	1	
C349		ECUM1H221JCV	C.CAPACITOR CH 50V 220P	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C350	ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C351	ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C353	ECUM1H330JCV	C.CAPACITOR CH 50V 33P	1	
C354	ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	1	
C355,56	ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C357	ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C358	ECSF1AE226	T.CAPACITOR 10V 22U	1	
C360	ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C361	ECEA1CKS330	E.CAPACITOR 16V 33U	1	
C362	ECUM1H270JCV	C.CAPACITOR CH 50V 27P	1	
C363,64	ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C365	ECSF0JE336	T.CAPACITOR 6.3V 33U	1	
C366	ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C368	ECUM1H271JCV	C.CAPACITOR CH 50V 270P	1	
C369	ECSF1AE106	T.CAPACITOR 10V 10U	1	
C371	ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C372	ECEV0JA470	E.CAPACITOR 6.3V 47U	1	
C373	ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C374-76	ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	3	
C377	ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C378	ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C379	ECUM1H330JCV	C.CAPACITOR CH 50V 33P	1	
C382	ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C384	ECEA1EKS4R7	E.CAPACITOR 25V 4.7U	1	
C385	ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C386	ECEV1CA100	E.CAPACITOR 16V 10U	1	
C387-89	ECUM1H560JCV	C.CAPACITOR CH 50V 56P	3	
C392	ECUM1H151JCV	C.CAPACITOR CH 50V 150P	1	
C393	ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	
C395,96	ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C398-00	ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	3	
C401,02	ECUM1H151JCV	C.CAPACITOR CH 50V 150P	2	
C501	ECEV1AAN100	E.CAPACITOR 10V 10U	1	
C502,03	ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C504	ECEV1AAN100	E.CAPACITOR 10V 10U	1	
C505,06	ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	2	
C507	ECEA1CKS100	E.CAPACITOR 16V 10U	1	
D301	MA141A	DIODE	1	
D305	MA141A	DIODE	1	
D306	MA141WK	DIODE	1	
D307	MA728	DIODE	1	
D308	MA3047M	DIODE	1	
D309	MA110	DIODE	1	
D501	MA141WA	DIODE	1	
D502	MA728	DIODE	1	
FL301	ELB4D011	FILTER	1	
FL302	VLF0728	FILTER	1	
FL303	ELB4B003	FILTER	1	
FL304	ELB4C011	FILTER	1	
FL305	ELB4E012	FILTER	1	
FL307	ELB4D010	FILTER	1	
FL308	ELB4B032	FILTER	1	
FL309	ELB4A013	FILTER	1	
FP302	VJS2596	CONNECTOR (FEMALE)	1	
FP306	VJS2137	CONNECTOR	1	
IC302	MN3823S	IC	1	
IC303	MN3824S	IC	1	
IC304	AN2154FAP	IC	1	
IC308,09	AN1358S	IC	2	
IC310	AN2254FAP	IC	1	
IC311	MN5107	IC	1	
IC312	VCR0250	IC	1	
IC501	MN4052BS	IC	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
IC502	AN1324NS	IC	1	
IC503	AN1358S	IC	1	
IC504,05	AN1324NS	IC	2	
L301	VLQ0163K150	COIL 15UH	1	
L302	VLQ0319F150	COIL 15UH	1	
L303	VLQ0163K101	COIL 100UH	1	
L304-06	VLQ0163K150	COIL 15UH	3	
L307	VLQ0163K330	COIL 33UH	1	
L308,09	VLQ0163K150	COIL 15UH	2	
L310	VLQ0291	COIL	1	
L311	VLQ0163K150	COIL 15UH	1	
L312	VLQ0163K101	COIL 100UH	1	
L313	VLQ0163K330	COIL 33UH	1	
P303	VJP1608T	CONNECTOR(MALE)	1	
P307	VJP1608T	CONNECTOR(MALE)	1	
P308,09	VJP2260	CONNECTOR (MALE)	2	
Q301	2SD1819	TRANSISTOR	1	
Q302	2SC3931	TRANSISTOR	1	
Q303	2SB1218	TRANSISTOR	1	
Q304	2SA1532	TRANSISTOR	1	
Q305	XN4601	TRANSISTOR-RESISTOR	1	
Q306	XN4401	TRANSISTOR-RESISTOR	1	
Q308	XN4601	TRANSISTOR-RESISTOR	1	
Q310	2SB1218	TRANSISTOR	1	
Q312	2SD1819	TRANSISTOR	1	
Q313	2SC3931	TRANSISTOR	1	
Q314	2SD1819	TRANSISTOR	1	
Q315	XN4401	TRANSISTOR-RESISTOR	1	
Q317	2SD1819	TRANSISTOR	1	
Q320	XN4401	TRANSISTOR-RESISTOR	1	
Q322	XN4608	TRANSISTOR	1	
Q324	2SA1532	TRANSISTOR	1	
Q328	XN4501	TRANSISTOR-RESISTOR	1	
Q501	2SB1218	TRANSISTOR	1	
Q502	XN4401	TRANSISTOR-RESISTOR	1	
Q503	XN4501	TRANSISTOR-RESISTOR	1	
Q504	XN4401	TRANSISTOR-RESISTOR	1	
Q505	XN4501	TRANSISTOR-RESISTOR	1	
Q506	2SD874	TRANSISTOR	1	
Q507	2SB1219	TRANSISTOR	1	
Q508-10	XN4601	TRANSISTOR-RESISTOR	3	
		RESISTORS		
R301	ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R302	ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
R303	ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R304	ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R305	ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R306	ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R307	ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R308	ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R309	ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R310	ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R311,12	ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	2	
R313	ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R314	ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R315	ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R317	ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R318	ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R319	ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R321	ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R322	ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R323	ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R324	ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R325,26		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	2	
R327		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R328		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R329		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R330		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R331		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	1	
R332		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R333		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R334		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R336		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R337		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R338		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R339		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R340		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R341		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R342		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R343		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R344		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R345		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R348		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R349		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R350		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	1	
R351		ERJ3GEYJ560	M.RESISTOR CH1/20W 56	1	
R352		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R353		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R354		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R355		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R357		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R358		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R359		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R360		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R361,62		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	2	
R363		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R364		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R365		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R366		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R367		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R368		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R369-71		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	3	
R374,75		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	2	
R376		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R377		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R378		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R379		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R380		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R381		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R382		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R383		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	1	
R385		ERJ3GEYJ823	M.RESISTOR CH1/20W 82K	1	
R386		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R387		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R388		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R389		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R390		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R394		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R396		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R397		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R398		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R399		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R400		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R401		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R402,03		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R404		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R405		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R406		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R408		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R409		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R410		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R411		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R412		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R413		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R414		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R415		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R416		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R417		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R418		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R419		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R426		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R427		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R428		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R429		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R431		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R432		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	1	
R433		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R434		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R435		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R436		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R437,38		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R439		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R440		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R442		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R443,44		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	2	
R445-47		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	3	
R448		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R449		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R450		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R451		ERJ3GEYJ823	M.RESISTOR CH1/20W 82K	1	
R452		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R453		ERJ3GEYJ564	M.RESISTOR CH1/20W 560K	1	
R456,57		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	2	
R458		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R459		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R460		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R461		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R462		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R463		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R465		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R468		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R501,02		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	2	
R503,04		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R505		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R506,07		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R508		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R509		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R510		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R511		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R512,13		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R514,15		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R516		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R517		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R518		ERJ3GEK106	M.RESISTOR CH 3W 10M	1	
R519		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R520		ERJ3GEYJ274	M.RESISTOR CH1/20W 270K	1	
R521		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R522		ERJ3GEK335	M.RESISTOR CH 3W 3.3M	1	
R523		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R524		ERJ3GEYJ564	M.RESISTOR CH1/20W 560K	1	
R525		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R526		ERJ3GEK106	M.RESISTOR CH 3W 10M	1	
R527		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R528		ERJ3GEYJ274	M.RESISTOR CH1/20W 270K	1	
R529		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R530		ERJ3GEK335	M.RESISTOR CH 3W 3.3M	1	
R531		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R532		ERJ3GEYJ564	M.RESISTOR CH1/20W 560K	1	
R533		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R534-36		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	3	
R537		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R538		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R539		ERJ3GEYJ823	M.RESISTOR CH1/20W 82K	1	
R540,41		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R542		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R543		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R544-53		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	10	
R554-56		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	3	
R557		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R558		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R559		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R560		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	1	
R561,62		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R563		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	1	
R564		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R565		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R566		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
R567-71		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	5	
R572		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R574,75		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R576		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R577-79		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	3	
R580		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R581		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R582		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R583		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R584		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R585		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
TH301		VRT0019	THERMISTOR	1	
VR301		EVM7JSX30B14	V.RESISTOR 10K	1	
VR303		EVM7JSX30B24	V.RESISTOR 20K	1	
VR304		EVM7JSX30B54	V.RESISTOR 50K	1	
VR305-07		EVM7JSX30B24	V.RESISTOR 20K	3	
VR309,10		EVM7JSX30B24	V.RESISTOR 20K	2	
VR311,12		EVM7JSX30B14	V.RESISTOR 10K	2	
VR313-15		EVM7JSX30B13	V.RESISTOR 1K	3	
VR317-20		EVM7JSX30B53	V.RESISTOR 5K	4	
VR322		EVM7JSX30B54	V.RESISTOR 50K	1	
VR324		EVM7JSX30B14	V.RESISTOR 10K	1	
VR327		EVM7JSX30B14	V.RESISTOR 10K	1	
VR328		EVM7JSX30B24	V.RESISTOR 20K	1	
VR329		EVM7JSX30B14	V.RESISTOR 10K	1	
VR523		EVM7JSX30B54	V.RESISTOR 50K	1	
VR525,26		EVM7JSX30B24	V.RESISTOR 20K	2	
VR527		EVM7JSX30B54	V.RESISTOR 50K	1	
VR528,29		EVM7JSX30B14	V.RESISTOR 10K	2	
VR530,31		EVM7JSX30B54	V.RESISTOR 50K	2	
	■	VEP22081A	SENSOR C.B.A.		(NLA)
B201		VJP1948	CONNECTOR (MALE)	1	
			CAPACITORS		
C201		ECSF1AE106	T.CAPACITOR 10V 10U	1	
C202-05		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	4	
C208		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	1	
C209		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C210		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C211		ECSF1AE106	T.CAPACITOR 10V 10U	1	
C213		ECEV0JA220	E.CAPACITOR 6.3V 22U	1	
C215		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C216		ECUM1E104MD	C.CAPACITOR CH 25V 0.1U	1	
C217		ECEV1HA010	E.CAPACITOR 50V 1U	1	
C218,19		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	2	
C220		ECEV1EA100	E.CAPACITOR 25V 10U	1	
C221,22		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C223		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C224		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C230		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C231		ECEA1EKS100	E.CAPACITOR 25V 10U	1	
C232-35		ECUM1H270JCV	C.CAPACITOR CH 50V 27P	4	
C236		ECSF1CE106	T.CAPACITOR 16V 10U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C240-43		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	4	
C244		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C245,46		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C247		ECUM1H101JCV	C.CAPACITOR CH 50V 100P	1	
C248,49		ECUM1H330JCV	C.CAPACITOR CH 50V 33P	2	
C250		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	1	
C253		ECUM1H330JCV	C.CAPACITOR CH 50V 33P	1	
C256		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C258,59		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C260,61		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	2	
C262		ECEV1CA100	E.CAPACITOR 16V 10U	1	
C265,66		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C267		ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	1	
C268-71		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	4	
C280		ECSF1AE106	T.CAPACITOR 10V 10U	1	
C281		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C282,83		ECUM1H180JCV	C.CAPACITOR CH 50V 18P	2	
C284		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C285		ECUM1H180JCV	C.CAPACITOR CH 50V 18P	1	
C290		ECUM1H120JCV	C.CAPACITOR CH 50V 12P	1	
C291		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	1	
C292		ECRJA020E12X	TRIMMER	1	
D201		MA110	DIODE	1	
D204		MA110	DIODE	1	
D208,09		MA110	DIODE	2	
D210		MA143	DIODE	1	
D212		MA3160H	DIODE	1	
D213,14		MA110	DIODE	2	
D215		MA728	DIODE	1	
FL201		ELB5B019	FILTER	1	
FP201		VJS2143	CONNECTOR (FEMALE)	1	
IC201		MN5109	IC	1	
IC202		UPD6147G	IC	1	
IC203		AN2012S	IC	1	
IC290,91		TC7SU04FT85R	IC	2	
L201		VLQ0163K150	COIL 15UH	1	
L203-05		VLQ0163K150	COIL 15UH	3	
L207,08		VLQ0163K150	COIL 15UH	2	
L210-14		VLQ0291	COIL	5	
Q202,03		2SD1819	TRANSISTOR	2	
Q204		2SC3930	TRANSISTOR	1	
Q207		2SA1610	TRANSISTOR	1	
Q208		2SC4176	TRANSISTOR	1	
Q209		2SA1610	TRANSISTOR	1	
Q210		2SC4176	TRANSISTOR	1	
Q212,13		2SD1819	TRANSISTOR	2	
			RESISTORS		
R202		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R203		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R204,05		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	2	
R206		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R207		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R208		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R209		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R210		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R211		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R212		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R215		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R216		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R217		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R218		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R219		ERJ3GEYJ220	M.RESISTOR CH1/20W 22	1	
R220		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R221		ERJ3GEYJ560	M.RESISTOR CH1/20W 56	1	
R222		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R235		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R237,38		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	2	
R240		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R241		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R242		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R243,44		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	2	
R245,46		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R247		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R248,49		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	2	
R250		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R251		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R252		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R254		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R257,58		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	2	
R260		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R261		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R263		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R270		ERJ8GCYJ330	M.RESISTOR CH 1/8W 33	1	
R290		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R291		ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
VR201		EVM7JSX30B25	V.RESISTOR 200K	1	
VR202		EVM7JSX30B54	V.RESISTOR 50K	1	
VR203		EVM7JSX30B24	V.RESISTOR 20K	1	
X290		VSX0320	CRYSTAL OSCILLATOR	1	
	■	VEP28018C	AUTO FOCUS C.B.A.		(NLA)
B701		VJP2574	CONNECTOR (MALE)	1	
			CAPACITORS		
C701		ECEA0JU471	E.CAPACITOR 6.3V 470U	1	
C702		ECUM1H270JCV	C.CAPACITOR CH 50V 27P	1	
C703		ECRJA020E12X	TRIMMER	1	
C706		ECUM1H101JCV	C.CAPACITOR CH 50V 100P	1	
C710,11		ECUM1E473KB	C.CAPACITOR CH 25V 0.047U	2	
C712		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C713		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C714		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C715-19		ECEA1CKS100	E.CAPACITOR 16V 10U	5	
C720		ECEA0JSN220	E.CAPACITOR 6.3V 22U	1	
C721		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C722-24		ECUM1E273KBN	C.CAPACITOR CH 25V 0.027U	3	
C725		ECUM1E683ZFN	C.CAPACITOR CH 25V 0.063U	1	
C726		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C727-29		ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	3	
C730		ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	
C731		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C732-35		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	4	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C736		ECUM1H221KBV	C.CAPACITOR CH 50V 220P	1	
C737		ECRJA020E12X	TRIMMER	1	
C738,39		ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	2	
C740,41		ECEA1CKS100	E.CAPACITOR 16V 10U	2	
C742		ECEA1HSN010	E.CAPACITOR 50V 1U	1	
C743		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C744,45		ECEA0JKS470	E.CAPACITOR 6.3V 47U	2	
C746		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C747		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C748		ECEA1CU100	E.CAPACITOR 16V 10U	1	
C749,50		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C755		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
D701,02		MA141A	DIODE	2	
D703,04		1SS250	DIODE	2	
FL701		ELB4B004	FILTER	1	
FL702		VLF0595	FILTER	1	
FL703		ELB4B005	FILTER	1	
FL704		ELB4D001	FILTER	1	
FL705		VLF0596	FILTER	1	
IC701		MN15867VNY	IC	1	
IC702		AN2584NFAP	IC	1	
IC703		NJM4558MP	IC	1	
IC704		AN78N05	IC	1	
IC705		NJM3415M	IC	1	
IC706		AN6663SP	IC	1	
L701		VLQ0300J560	COIL 56UH	1	
L702		VLQEL05F101K	COIL 100UH	1	
L703		VLQEL05F330K	COIL 33UH	1	
L704		VLQEL05F150K	COIL 15UH	1	
P701		VJP1599T	CONNECTOR(MALE) 6P	1	
P703		VJP1599T	CONNECTOR(MALE) 6P	1	
P704		VJP1596T	CONNECTOR(MALE) 3P	1	
P705		VJP1603T	CONNECTOR(MALE) 10P	1	
Q701,02		UN2211	TRANSISTOR-RESISTOR	2	
Q703		2SB710	TRANSISTOR CHIP	1	
Q704		2SA1255	TRANSISTOR	1	
Q705		2SC3138	TRANSISTOR	1	
Q706,07		2SD1819	TRANSISTOR	2	
Q710		XN1212	TRANSISTOR-RESISTOR	1	
Q711		XN4501	TRANSISTOR-RESISTOR	1	
			RESISTORS		
R701		ERJ3GEYJ220	M.RESISTOR CH1/20W 22	1	
R702,03		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	2	
R704-06		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	3	
R707,08		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	2	
R709		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R710-13		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	4	
R715,16		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R717		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R718		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R720		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R721		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R722		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R723		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R724,25		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	2	
R726		ERJ3GEYJ124	M.RESISTOR CH1/20W 120K	1	
R727		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R728		ERJ3GEYJ823	M.RESISTOR CH1/20W 82K	1	
R729		ERJ3GEYJ394	M.RESISTOR CH1/20W 390K	1	
R730		ERJ3GEYJ474	M.RESISTOR CH1/20W 470K	1	
R731		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R732		ERJ3GEG822	M.RESISTOR CH 3W 8.2K	1	
R733		ERJ3GEG472	M.RESISTOR CH 3W 4.7K	1	
R734-38		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	5	
R739		ERJ3GEYJ823	M.RESISTOR CH1/20W 82K	1	
R740		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R741		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R742		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R743		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	1	
R744		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R745		ERJ3GEYJ100	M.RESISTOR CH1/20W 10	1	
R746		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R747		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R748,49		ERJ3GEYJ274	M.RESISTOR CH1/20W 270K	2	
R750		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R751		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R752		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R759		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R760		ERJ6GEYJ470	CHIP 1/10W 47	1	
T701		ETE13K43AY	TRANSFORMAR	1	
VR701		EVML1GA00B53	V.RESISTOR 5K	1	
VR702		EVML1GA00B15	V.RESISTOR 100K	1	
VR703		EVM7JSX30B14	V.RESISTOR 10K	1	
X701		VSX0299	CRYSTAL OSCILLATOR	1	
			MISCELLANEOUS		
		VSC2318	SHIELD BOX	1	
		VSC2719	SHIELD BOX	1	FOR COIL
	■	VEP22083A	AWT(3) C.B.A.		(NLA)
			CAPACITORS		
C601-03		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	3	
FP601		VJS2110	CONNECTOR (FEMALE)	1	
IC601		M51096AU	IC	1	
IC602		AN1358S	IC	1	
			RESISTORS		
R601		ERJ6GEYF123	M.RESISTOR CH1/10W 12K	1	
R602		ERJ6GEYF822	M.RESISTOR CH1/10W 8.2K	1	
R603		ERJ6GEYF124	M.RESISTOR CH1/10W 120K	1	
R604		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R605		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R606,07		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R608		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R609		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R610		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEP26047B	CAMERA OPERATION C.B.A.		(NLA)
			CAPACITORS		
C001,02		ECEA0JKS470	E.CAPACITOR 6.3V 47U	2	
D001,02		MA151K	DIODE	2	
FP001		VJS2596	CONNECTOR (FEMALE)	1	
P001		VJP1614T	CONNECTOR(MALE)	1	
P002		VJP1606T	CONNECTOR(MALE)	1	
Q001		XN4501	TRANSISTOR-RESISTOR	1	
Q002		2SB709	TRANSISTOR CHIP	1	
			RESISTORS		
R003		ERJ6GEYJ183	CHIP 1/10W 180K	1	
R004		ERJ6GEYJ124	CHIP 1/10W 120K	1	
R005		ERJ6GEYJ154	CHIP 1/10W 150K	1	
R006		ERJ6GEY0R00	CHIP 1/10W 0	1	
R007		ERJ6GEYJ103	M.RESISTOR CH 1/10W 10K	1	
R008		ERJ6GEYJ822	CHIP 1/10W 8.2K	1	
R031		ERJ6GEYJ102	M.RESISTOR CH 1/10W 1K	1	
R032		ERJ6GEYJ394	CHIP 1/10W 390K	1	
R033		ERJ6GEYJ153	CHIP 1/10W 15K	1	
R034		ERJ6GEYJ333	CHIP 1/10W 33K	1	
R035		ERJ6GEYJ223	CHIP 1/10W 22K	1	
R036		ERJ6GEYJ153	CHIP 1/10W 15K	1	
R037		ERJ6GEYJ393	CHIP 1/10W 39K	1	
SW002-05		EVQQSU04W	SWITCH	4	
SW006		VSS0220	SWITCH	1	
SW007		VSS0236	SWITCH	1	
VR001		EVLH1AA00A54	V.RESISTOR 50K	1	
	■	VEP27038C	E.V.F. C.B.A.		(NLA)
			CAPACITORS		
C901		ECEA1CKE101	E.CAPACITOR 16V 100U	1	
C902		ECSE1CY684V	T.CAPACITOR 16V 0.68U	1	
C903		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C904		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C905		ECEA1CKE101	E.CAPACITOR 16V 100U	1	
C906		ECUM1H681JCN	C.CAPACITOR CH 50V 680P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C907		ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	1	
C908		ECUM1E223KBN	C.CAPACITOR CH 25V 0.023U	1	
C909		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C910		ECUM1E152JP	C.CAPACITOR CH 25V 1500P	1	
C911		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C912		ECEA1AF470	E.CAPACITOR 10V 47U	1	
C913		ECEA0JK221	E.CAPACITOR 6.3V 220U	1	
C914		ECQK1392JZ	P.CAPACITOR 100V 3900P	1	
C915		ECEA1CKS220I	E.CAPACITOR 16V 22U	1	
C916		ECUM1H101JCN	C.CAPACITOR CH 50V 100P	1	
C917		ECEA1HKS4R7	E.CAPACITOR 50V 4.7U	1	
C918		VCK0075K121	C.CAPACITOR 120P	1	
C919		VCK0058K331	C.CAPACITOR 330P	1	
C920,21		ECUX1H473ZFN	C.CAPACITOR CH 50V 0.047U	2	
C922		ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
D901		MA141K	DIODE	1	
D902		ERA91-02	DIODE	1	
D903		ERA34-10	DIODE	1	
D951		LN29CALU	DIODE	1	
IC901		AN2510S	IC	1	
L901		VLQ0321	COIL	1	
L902		ELH5L313D	COIL	1	
P901		VJP1600T	CONNECTOR	1	
P902		VJP1597T	CONNECTOR (MALE)	1	
P903		VJP1596T	CONNECTOR	1	
P904		VJP1229T	CONNECTOR (MALE)	1	
Q901		2SB1218	TRANSISTOR	1	
Q902		2SD968A	TRANSISTOR	1	
Q903		2SA1532	TRANSISTOR	1	
			RESISTORS		
R901		ERJ3GEYK6R8	M.RESISTOR CH1/20W 6.8	1	
R902		ERJ6GEYG682	M.REISITOR CH 1/10W 6.8K	1	
R903		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R904		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R905		ERJ3GEK4R7	M.RESISTOR CH 3W 4.7	1	
R906		ERJ3GEJ150	M.RESISTOR CH 3W 15	1	
R907		ERJ3GEYJ151	M.RESISTOR CH1/20W 150	1	
R908		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R909		ERJ3GEYJ163	M.RESISTOR CH1/20W 16K	1	
R910		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R911		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R912		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	1	
R913		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R914		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	1	
R915,16		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R917		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R918		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R919		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R920		ERJ3GEYJ274	M.RESISTOR CH1/20W 270K	1	
R921		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R922		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R923		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R924		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R926		ERJ6GEYJ105	CHIP 1/10W 1M	1	
R927		ERJ6GEYK125	CHIP 1/10W 1.2M	1	
R928		ERJ6GEYK335	CHIP 1/10W 3.3M	1	
R929		ERJ6GEYK125	CHIP 1/10W 1.2M	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R931		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R933		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R934		ERJ3GEK1R5	M.RESISTOR CH 3W 1.5	1	
R951		ERJ6GEYJ151	CHIP 1/10W 150	1	
T901		ETF14L34A	TRANSFORMER	1	
TH901		VRT0012	THERMISTER	1	
VR901		EVM7JSX30BE2	V.RESISTOR	1	
VR902		EVM7JSX30B53	V.RESISTOR 5K	1	
VR904		VRV0040B225	V.RESISTOR 2.2M	1	
VR905		VRV0040B105	V.RESISTOR 1M	1	
	■	VEP06572A	MAIN C.B.A.		(NLA)
			CAPACITORS		
C1001		ECUM1H151JCN	C.CAPACITOR CH 50V 150P	1	
C1002		ECUM1H471KBV	C.CAPACITOR CH 50V 470P	1	
C1003		ECUM1H151JV	C.CAPACITOR CH 50V 150P	1	
C1004		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C1005		ECUM1C474ZFM	C.CAPACITOR CH 16V 0.47U	1	
C1006		ECUM1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C1008		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C1009		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C1010		ECEA1CU101	E.CAPACITOR 16V 100U	1	
C1011		ECEA1CU331	E.CAPACITOR 16V 330U	1	
C1012-14		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	3	
C1015		ECEA05KJ471	E.CAPACITOR 470U	1	
C1016		ECEA05KJ221	E.CAPACITOR 220U	1	
C1017		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C1019		ECSF1CE476	T.CAPACITOR 16V 47U	1	
C1020		ECEA05KJ221	E.CAPACITOR 220U	1	
C1021		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C1022		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C1023		ECEA1AKJ121	E.CAPACITOR 10V 120U	1	
C1024,25		ECEA1CKE101	E.CAPACITOR 16V 100U	2	
C1026		ECUM1H332KBV	C.CAPACITOR CH 50V 3300P	1	
C1027		ECUM1H682KBV	C.CAPACITOR CH 50V 0.068U	1	
C1030,31		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	2	
C1032		ECEA1ASE101	E.CAPACITOR 10V 100U	1	
C1033		ECSF1VE156	T.CAPACITOR 35V 15U	1	
C1034,35		ECEA1AKS330	E.CAPACITOR 10V 33U	2	
C1036		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C1037		ECST1EY474	T.CAPACITOR 25V 0.47U	1	
C2001,02		ECUM1H101JV	C.CAPACITOR CH 50V 100P	2	
C2003		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C2004		ECUM1C473ZFV	C.CAPACITOR CH 16V 0.047U	1	
C2005,06		ECEA0JKS470	E.CAPACITOR 6.3V 47U	2	
C2007		ECUM1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C2008		ECUM1H101JV	C.CAPACITOR CH 50V 100P	1	
C2009,10		ECEA0JKS220	E.CAPACITOR 6.3V 22U	2	
C2011		ECUM1C473ZFV	C.CAPACITOR CH 16V 0.047U	1	
C2012		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C2013		ECUM1H471KBV	C.CAPACITOR CH 50V 470P	1	
C2014		ECEA1VSN2R2	E.CAPACITOR 35V 2.2U	1	
C2015,16		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C2017		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C2018		ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C2019		ECEA1AKA330	E.CAPACITOR 10V 33U	1	
C2020		ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C2021,22		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C2023		ECUM1C333ZFV	C.CAPACITOR CH 16V 0.033U	1	
C2024		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C2025,26		ECEA0JKA101	E.CAPACITOR 6.3V 100U	2	
C2027		ECUM1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C2028		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C2029		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C2030		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C2031		ECUM1C474ZFM	C.CAPACITOR CH 16V 0.47U	1	
C2032		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C2033		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C2034		ECUM1H101JV	C.CAPACITOR CH 50V 100P	1	
C2035		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C2036		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C2037		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C2038,39		ECEA1AKS330	E.CAPACITOR 10V 33U	2	
C2040		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C2041		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C2043		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C2044		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C2045		ECQV1H393JZ	P.CAPACITOR 50V 0.039U	1	
C2046		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C2047		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C2048,49		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	2	
C2050		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C2051		ECUM1C474ZFM	C.CAPACITOR CH 16V 0.47U	1	
C2053		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C2055		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C2056		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C2060		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3502		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C3503,04		ECEA0JKA221	E.CAPACITOR 6.3V 220U	2	
C3507		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3508,09		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C3510,11		ECEA0JKA221	E.CAPACITOR 6.3V 220U	2	
C3512		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C3513		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3514		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C3515		ECEA1ASE101	E.CAPACITOR 10V 100U	1	
C3516,17		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C3518		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3519		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3522		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C3523		ECUM1H151JV	C.CAPACITOR CH 50V 150P	1	
C3524		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C3525		ECEA0JKS330	E.CAPACITOR 6.3V 33U	1	
C3528		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3534		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C3536		ECEA1ASJ101	E.CAPACITOR 10V 100U	1	
C3537		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3538		ECEA1ASE101	E.CAPACITOR 10V 100U	1	
C3541		ECUM1H470JCV	C.CAPACITOR CH 50V 47P	1	
C4005		ECUM1H122KBV	C.CAPACITOR CH 50V 1200P	1	
C4007		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4008		ECEA1HSN010	E.CAPACITOR 50V 1U	1	
C4009		ECUM1H271KBV	C.CAPACITOR CH 50V 270P	1	
C4010		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4011		ECUX1H822KBN	C.CAPACITOR CH 50V 8200P	1	
C4012		ECUM1E333KBN	C.CAPACITOR CH 25V 0.033U	1	
C4013		ECUM1H151JV	C.CAPACITOR CH 50V 150P	1	
C4014		ECSF1VE105	T.CAPACITOR 35V 1U	1	
C4015		ECUM1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C4016		ECEA1HKKR47	E.CAPACITOR 50V 0.47U	1	
C4017		ECEA0JKS330	E.CAPACITOR 6.3V 33U	1	
C4018		ECQP1562JZ	P.CAPACITOR 100V 5600P	1	
C4019		ECEA1CKS220	E.CAPACITOR 16V 22U	1	
C4020		ECUM1H391KBV	C.CAPACITOR CH 50V 390P	1	
C4021		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C4022		ECUM1H153KBN	C.CAPACITOR CH 50V 0.015U	1	
C4023		ECQV1H683JZ	P.CAPACITOR 50V 0.068U	1	
C4024		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C4025		ECUM1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C4026		ECUM1H153KBN	C.CAPACITOR CH 50V 0.015U	1	
C4027		ECEA1AKA470	E.CAPACITOR 10V 47U	1	
C4028		ECEA1CKA220	E.CAPACITOR 16V 22U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C4029		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4030		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C4031		ECUM1H123KBN	C.CAPACITOR CH 50V 0.012U	1	
C4032		ECUM1H153KBN	C.CAPACITOR CH 50V 0.015U	1	
C4033		ECEA0JKK100	E.CAPACITOR 6.3V 10U	1	
C4034		ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C4035		ECUM1H822KBV	C.CAPACITOR CH 50V 8200P	1	
C4036		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4037		ECEA1AKA470	E.CAPACITOR 10V 47U	1	
C4039		ECUX1H682KBN	C.CAPACITOR CH 50V 6800P	1	
C4040		ECEA1CKA470	E.CAPACITOR 16V 47U	1	
C4041		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C4044		ECUM1E683ZFN	C.CAPACITOR CH 25V 0.063U	1	
C4045		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C6001		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C6002		ECEA0JSJ151	E.CAPACITOR 6.3V 150U	1	
C6003		ECRJA030E12	V.CAPACITOR	1	
C6004		ECUM1H330JCV	C.CAPACITOR CH 50V 33P	1	
C6005		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C6006		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C6007,08		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
C6009,10		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C6011		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C6012		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C6013,14		ECEA0JKS220	E.CAPACITOR 6.3V 22U	2	
C6015		ECEA1AKS330	E.CAPACITOR 10V 33U	1	
C6016		ECEA1CKS470	E.CAPACITOR 16V 47U	1	
C6017		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C6018,19		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C6020		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C6021		ECUM1E104ZFM	C.CAPACITOR CH 25V 0.1U	1	
D1001		SFPB-64	DIODE	1	
D1002		MA121	DIODE	1	
D1003		SFPB-54	DIODE	1	
D1004		SFPB-59	DIODE	1	
D1005		SFPB-54	DIODE	1	
D1006		MA141A	DIODE	1	
D1007		DAP202U	DIODE	1	
D1008		MA159	DIODE	1	
D1009		MA3075H	DIODE	1	
D1010		MA721	DIODE	1	
D2001-04		DA204U	DIODE	4	
D2005-08		DAN202U	DIODE	4	
D2009		MA141K	DIODE	1	
D2010		MA141A	DIODE	1	
D2011		MA141K	DIODE	1	
D2013,14		MA141K	DIODE	2	
D3501		DAN202U	DIODE	1	
D3502		DA204U	DIODE	1	
D4001		MA141A	DIODE	1	
D6001,02		DAP202U	DIODE	2	
D6004		MA159	DIODE	1	
D6005		MA141A	DIODE	1	
D6006		MA141K	DIODE	1	
D6007		DAP202U	DIODE	1	
D6008,09		DAN202U	DIODE	2	
D6010		MA141K	DIODE	1	
D6012,13		MA141A	DIODE	2	
D6014		DAP202U	DIODE	1	
D6015		MA141A	DIODE	1	
D6016		MA141K	DIODE	1	
D6017		MA141A	DIODE	1	
D6018		DA204U	DIODE	1	
D6020		MA141A	DIODE	1	
D6021		DAP202U	DIODE	1	
IC1001		TL1453CNS-L	IC	1	
IC1002		UPC358G2	IC	1	
IC1003		LM2903M	IC	1	
IC1004		UN215	IC	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
IC1005		UPC358G2	IC	1	
IC2001		MN67461VDTF	IC	1	
IC2002		AN3798NS	IC	1	
IC2003		MN1551VYJS4	IC	1	
IC4001		UPC1513G	IC	1	
IC4002		UPC2300G	IC	1	
IC6001		UPD75108G784	IC	1	
IC6002		S81250HGRD	IC	1	
IC6003		UPD6142G101A	IC	1	
IC6004		S3500A	IC	1	
IC6005		M54543ASL	IC	1	
IC6006		MN12821Q	IC	1	
IC6007		UPD4094BG	IC	1	
J1001		VJJ0165	JACK	1	
J3501		VJS1980	CONNECTOR (FEMALE)	1	
J3502		VJJ0168	JACK	1	
J6001		VJJ0163	CONNECTOR	1	
J6002		VJJ0169	JACK	1	
L1001		ELC06D005	COIL	1	
L1002		ELC10C001	COIL	1	
L1003		ELC08D024	COIL	1	
L1004		ELC08D025	COIL	1	
L1005		ELC06D005	COIL	1	
L1006		ELC04D002	COIL	1	
L1007		VLQEL05F101K	COIL 100UH	1	
L1008		VLQ0319F221	COIL 220UH	1	
L1009		ELC04D006	COIL 120UH	1	
L1010		VLQ0319F221	COIL 220UH	1	
L3502,03		VLQEL05F101K	COIL 100UH	2	
L3506		VLQEL04F101K	COIL 100UH	1	
L3508		VLQ0163J220	COIL 22UH	1	
L4001		VLQEL05F101K	COIL 100UH	1	
L4002		VLQEL05F221K	COIL 220UH	1	
L4003		VLQEL07F153J	COIL 15MH	1	
L4004		VLQEL07F822J	COIL 8200UH	1	
L6001		VLQEL05F330J	COIL 33UH	1	
L6002		VLQEL04F221K	COIL 220UH	1	
P1001		VJP1607T	CONNECTOR(MALE)	1	
P1002		VJS2137	CONNECTOR	1	
P1003		VJP2260	CONNECTOR (MALE)	1	
P2001		VJS2583	CONNECTOR	1	
P3501		VJS2628	CONNECTOR	1	
P3503		VJP2237	CONNECTOR (MALE)	1	
P3504		VJP2272	CONNECTOR (MALE)	1	
P4001		VJP1607T	CONNECTOR(MALE)	1	
P4002		VJP1611T	CONNECTOR(MALE)	1	
P4003		VJP2262	CONNECTOR (MALE)	1	
P4004		VJP2263	CONNECTOR	1	
P4005		VJS2123	CONNECTOR	1	
P6001		VJP2260	CONNECTOR (MALE)	1	
P6003		VJS2110	CONNECTOR (FEMALE)	1	
P6004		VJS1984	CONNECTOR	1	
P6005		VJP2272	CONNECTOR (MALE)	1	
P6009		VJP2271	CONNECTOR (MALE)	1	
P6010		VJP2272	CONNECTOR (MALE)	1	
P6013		VJP2272	CONNECTOR (MALE)	1	
Q1001,02		2SB956	TRANSISTOR	2	
Q1003		FMW1	TRANSISTOR	1	
Q1004		2SB956	TRANSISTOR	1	
Q1005		2SD1526VT	TRANSISTOR	1	
Q1006,07		2SB956	TRANSISTOR	2	
Q1009		2SB1218	TRANSISTOR	1	
Q2001		2SD1819	TRANSISTOR	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q3503-05		XN4601	TRANSISTOR-RESISTOR	3	
Q3506		2SC3931	TRANSISTOR	1	
Q3507		XN4608X	TRANSISTOR	1	
Q3508		XN4601	TRANSISTOR-RESISTOR	1	
Q3510		2SB1218	TRANSISTOR	1	
Q3511		XN4601	TRANSISTOR-RESISTOR	1	
Q3515,16		2SB970X	TRANSISTOR	2	
Q3521		2SC3931	TRANSISTOR	1	
Q3522		2SB970	TRANSISTOR	1	
Q4004		2SD1820	TRANSISTOR	1	
Q4005		2SD1819	TRANSISTOR	1	(R)
Q4006		2SB1219	TRANSISTOR	1	
Q4007		2SD1819	TRANSISTOR	1	
Q6001		FMW1	TRANSISTOR	1	
Q6003		XN4608X	TRANSISTOR	1	
Q6005,06		2SD1819	TRANSISTOR	2	
QR1001		XN4111	TRANSISTOR-RESISTOR	1	
QR1002		IMD2	TRANSISTOR-RESISTOR	1	
QR1004		GA1F4M	TRANSISTOR-RESISTOR	1	
QR1005		IMD2	TRANSISTOR-RESISTOR	1	
QR1006		GA1L4M	TRANSISTOR-RESISTOR	1	
QR2003		GA1L4M	TRANSISTOR-RESISTOR	1	
QR2004,05		GN1F4Z	TRANSISTOR-RESISTOR	2	
QR2006		GA1L4Z	TRANSISTOR-RESISTOR	1	
QR2007		GA1L4M	TRANSISTOR-RESISTOR	1	
QR2008		FMG1	TRANSISTOR-RESISTOR	1	
QR3503		FMG1	TRANSISTOR-RESISTOR	1	
QR3505		GN1A4M	TRANSISTOR-RESISTOR	1	
QR3508		GA1L4M	TRANSISTOR-RESISTOR	1	
QR3511		FMG1	TRANSISTOR-RESISTOR	1	
QR4001		GA1F4M	TRANSISTOR-RESISTOR	1	
QR4002		GN1L3Z	TRANSISTOR-RESISTOR	1	
QR4003		GA1A4M	TRANSISTOR-RESISTOR	1	
QR4004		GA1F4M	TRANSISTOR-RESISTOR	1	
QR4005		GN1L3Z	TRANSISTOR-RESISTOR	1	
QR6001,02		GA1F4Z	TRANSISTOR-RESISTOR	2	
QR6003		XN1217	TRANSISTOR-RESISTOR	1	
QR6004		GA1F4Z	TRANSISTOR-RESISTOR	1	
QR6005		GN1L4M	TRANSISTOR-RESISTOR	1	
QR6006		GN1A4Z	TRANSISTOR-RESISTOR	1	
QR6007,08		GA1L4M	TRANSISTOR-RESISTOR	2	
QR6009		XN4316	COMBI.PARTS	1	
QR6010,11		GA1F4Z	TRANSISTOR-RESISTOR	2	
QR6014		GA1L4M	TRANSISTOR-RESISTOR	1	
QR6015		GN1F4M	TRANSISTOR-RESISTOR	1	
QR6016		GA1F4M	TRANSISTOR-RESISTOR	1	
QR6017		GA1L4L	TRANSISTOR-RESISTOR	1	
QR6018		FMG2	TRANSISTOR-RESISTOR	1	
QR6022		GA1F4Z	TRANSISTOR-RESISTOR	1	
QR6024		GN1L4M	TRANSISTOR-RESISTOR	1	
			RESISTORS		
R1001		VRE0034E363	V.RESISTOR 36K	1	
R1002		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R1003		ERJ3GEYJ124	M.RESISTOR CH1/20W 120K	1	
R1004		ERJ8GCYJ471	M.RESISTOR CH 1/8W 470	1	
R1005		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R1006		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R1007		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R1008		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R1009		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R1010		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R1011,12		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	2	
R1013		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R1014		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R1016		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R1017		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R1018		ERJ8GCYJ471	M.RESISTOR CH 1/8W 470	1	
R1019		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R1020		ERJ8GCYJ471	M.RESISTOR CH 1/8W 470	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R1021		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R1023		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R1024		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R1025		ERJ6GMYJ822	M.RESISTOR CH1/10W 8.2K	1	
R1026		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R1027		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R1028		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R1029,30		ERJ6GMYJ102	CHIP 1/10W 1K	2	
R1031		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R1032		ERJ6GMYJ153	M.RESISTOR CH1/10W 15K	1	
R1033		ERJ6GMYJ273	M.RESISTOR CH1/10W 27K	1	
R1034		ERJ6GMYG154	M.RESISTOR CH1/10W 150K	1	
R1035		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R1036		ERJ6GMYJ821	M.RESISTOR CH1/10W 820	1	
R1037		ERJ8GCYJ330	M.RESISTOR CH 1/8W 33	1	
R1038		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R1039		ERJ8GCYJ560	CHIP 1/8W 56	1	
R1040		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R1041		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R1042		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R1043		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R1044,45		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R1046		VSF0059	FUSE	1	
R1047		VSF0015A15	V.RESISTOR	1	
R1048		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R1049		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R1050		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R1051		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R1052		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R1060		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R1061		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R2001,02		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R2003		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R2004		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R2005,06		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R2007		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R2009		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R2010		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R2011		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	1	
R2012		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R2013		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R2014		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R2015		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R2016		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R2017		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R2018		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R2019		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R2020		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R2022		ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
R2024		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R2025		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R2026		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R2028		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	1	
R2029		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R2030		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R2031		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R2032		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R2033		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R2034		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R2035		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R2036		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R2038		ERJ6GMYJ223	M.RESISTOR CH1/10W 22K	1	
R2041		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R2043		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R2045		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R2046		ERJ8GCY0R00	M.RESISTOR CH 1/8W 0.00	1	
R2047		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R2048		ERJ6GMYJ221	M.RESISTOR CH1/10W 220	1	
R2049-51		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	3	
R2052		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R2053		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R2054		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	1	
R2055		ERJ3GEYJ184	M.RESISTOR CH1/20W 180K	1	
R2056		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
R2057		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R2059		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R2061		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R2062		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R2063		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R3503		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R3505		ERJ3GEYJ220	M.RESISTOR CH1/20W 22	1	
R3506		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R3507		ERJ3GEYJ560	M.RESISTOR CH1/20W 56	1	
R3508		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R3510		ERJ3GEYJ560	M.RESISTOR CH1/20W 56	1	
R3512		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3513		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R3514		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R3515		ERJ6GMY0R00	CHIP 1/16W 0	1	
R3518		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R3519		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R3520		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R3521		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R3526		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3527		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R3528		ERJ3GEYJ560	M.RESISTOR CH1/20W 56	1	
R3529		ERJ3GEYJ220	M.RESISTOR CH1/20W 22	1	
R3530		ERJ6GMYJ821	M.RESISTOR CH1/10W 820	1	
R3531		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R3532		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R3533		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R3534		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R3535		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R3536		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R3537		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3540		ERJ6GMYJ472	CHIP 1/10W 4.7K	1	
R3541-43		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	3	
R3544		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R3545		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R3546		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3547		ERJ3GEG681	M.RESISTOR CH 3W 680	1	
R3548		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R3549		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R3552		ERJ3GEG391	M.RESISTOR CH 3W 390	1	
R3553		ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
R3554		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R3557		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R3558		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R3559		ERJ3GEG681	M.RESISTOR CH 3W 680	1	
R3563		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R3567		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R3568		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R3569		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R3570		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R4013		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R4014		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R4015		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4016		ERJ3GEYJ184	M.RESISTOR CH1/20W 180K	1	
R4017		ERJ3GEYJ181	M.RESISTOR CH1/20W 180	1	
R4018		ERJ3GEYJ151	M.RESISTOR CH1/20W 150	1	
R4019		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R4020-22		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	3	
R4023		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R4024		ERJ3GEYJ100	M.RESISTOR CH1/20W 10	1	
R4025		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R4026		ERJ6GMYJ562	CHIP 1/10W 5.6K	1	
R4029		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R4030		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R4032		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R4033		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R4034		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R4035		ERJ3GEYJ181	M.RESISTOR CH1/20W 180	1	
R4036		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R4037,38		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	2	
R4039		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R4040		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R4041		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R4042		ERJ3GEYJ684	M.RESISTOR CH1/20W 680K	1	
R4043		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R4045		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R4046		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R4051		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R4052		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R4053		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R4055		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R6001		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6004		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R6006		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R6007-09		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	3	
R6010		ERJ6GMYJ683	M.RESISTOR CH1/10W 68K	1	
R6011		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6012		ERJ6GMYJ473	CHIP 1/10W 47K	1	
R6013,14		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	2	
R6015		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R6016		ERJ6GMYJ683	M.RESISTOR CH1/10W 68K	1	
R6017		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R6018		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R6019		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R6020		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6021		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R6022		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R6023		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R6024		ERJ3GEYJ124	M.RESISTOR CH1/20W 120K	1	
R6025		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R6026		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R6027		ERJ3GEYJ823	M.RESISTOR CH1/20W 82K	1	
R6028		ERJ3GEYJ124	M.RESISTOR CH1/20W 120K	1	
R6029		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6030,31		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	2	
R6032		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6033		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R6034		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R6035		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R6036		ERJ3GEYJ184	M.RESISTOR CH1/20W 180K	1	
R6037,38		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R6039		ERJ6GMYJ683	M.RESISTOR CH1/10W 68K	1	
R6040		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R6043		ERJ6GMYJ100	M.RESISTOR CH1/10W 10	1	
R6044		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6045		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R6046		ERJ3GEYJ184	M.RESISTOR CH1/20W 180K	1	
R6047		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6048		ERJ3GEYJ394	M.RESISTOR CH1/20W 390K	1	
R6049		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R6050,51		ERJ6GMYJ101	CHIP 1/10W 100	2	
R6052,53		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R6054		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R6055,56		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R6057-60		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	4	
R6061		ERJ6GMYJ102	CHIP 1/10W 1K	1	
R6062		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R6063		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R6064-67		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	4	
R6068		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R6069		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R6070-73		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	4	
R6074		ERJ6GMYJ331	CHIP 1/10W 330	1	
R6075		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	1	
R6076		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R6077		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R6078		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R6079		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6080		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R6081		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6082,83		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	2	
R6084		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R6085		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R6086		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R6087		ERJ8GCYJ332	M.RESISTOR CH 1/8W 3.3K	1	
R6088,89		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	2	
R6090		ERJ6GMYJ683	M.RESISTOR CH1/10W 68K	1	
R6091,92		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
SW6001,02		EVQQFV02K	SWITCH	2	
SW6003,04		EVQQSH04K	SWITCH	2	
T1001		ELL10R018	TRANSFORMER	1	
T4001		EIQ7QF017Q	TRANSFORMER	1	
T4002		EIQ5QT004Q	TRANSFORMER	1	
VR1001		EVM7NSW00B23	V.RESISTOR 2K	1	
VR1002		EVM7NSW00B13	V.RESISTOR 47K	1	
VR1003		EVM7NSX00B53	V.RESISTOR 5K	1	
VR2001		EVM7NSW00B15	V.RESISTOR 100K	1	
VR4001		EVM7NSW00B23	V.RESISTOR 2K	1	
VR4002		EVM7NSW00B54	V.RESISTOR 50K	1	
VR6001		EVM7NSW00B24	V.RESISTOR 20K	1	
X2001		VSX0154	CRYSTAL OSCILLATOR	1	
X6001		VSX0299	CRYSTAL OSCILLATOR	1	
X6002		VSX0249	CRYSTAL OSCILLATOR	1	
			MISCELLANEOUS		
		VMP1812	JACK FIX PLATE	1	
		VSC2642	SHIELD BOX(TOP)	1	FOR POWER
		VSC2643	SHIELD BOX(BOTTOM)	1	FOR POWER
		VMZ1328	SHIELD PLATE	1	
		VWJ05SW110LL	FLEXIBLE CARD	1	P6003-FP601
		VGQ1593	REMOCON JACK HOLDER	1	
		VWJ0349	FLEXIBLE CARD	1	P4005-P4502
		VMZ1339	INSULATION SHEET	1	
	■	VEP03617A	LUMINANCE/CHROMINANCE		(NLA)
			C.B.A.		
			CAPACITORS		
C3001		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C3002		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3003		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3004,05		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C3006		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	1	
C3007		ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C3008		ECUM1H390JCV	C.CAPACITOR CH 50V 39P	1	
C3010		ECUM1H471KBV	C.CAPACITOR CH 50V 470P	1	
C3011		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3012		ECEA1CKS220	E.CAPACITOR 16V 22U	1	
C3013,14		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C3015,16		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	2	
C3017		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3018		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	1	
C3019		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C3020		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3021		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C3022		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C3023,24		ECEA0JSJ151	E.CAPACITOR 6.3V 150U	2	
C3025		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3026		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C3027		ECEA1CSN4R7	E.CAPACITOR 16V 4.7U	1	
C3028		ECST1VY104	T.CAPACITOR 35V 0.1U	1	
C3029		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C3032		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C3033-37		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	5	
C3038		ECUX1H681JN	C.CAPACITOR CH 50V 680P	1	
C3039		ECUM1H101JCV	C.CAPACITOR CH 50V 100P	1	
C3040		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3041		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3042		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C3043		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3044		ECUM1H150JCV	C.CAPACITOR CH 50V 15P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C3046		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C3047		ECUM1H100CCV	C.CAPACITOR CH 50V 10P	1	
C3048		ECUM1H471KBV	C.CAPACITOR CH 50V 470P	1	
C3049		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C3050		ECEA1HKS2R2	E.CAPACITOR 50V 2.2U	1	
C3051		ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	
C3052		ECUM1H101JV	C.CAPACITOR CH 50V 100P	1	
C3053		ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	
C3054,55		ECUM1H560JCV	C.CAPACITOR CH 50V 56P	2	
C3056		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C3057		ECEA1HKS2R2	E.CAPACITOR 50V 2.2U	1	
C3058		ECUM1H273ZFN	C.CAPACITOR CH 50V 0.027U	1	
C3060		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C3061,62		ECUM1H271JV	C.CAPACITOR CH 50V 270P	2	
C3063		ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	
C3064		ECUM1H221JV	C.CAPACITOR CH 50V 220P	1	
C3065		ECUM1H271JV	C.CAPACITOR CH 50V 270P	1	
C3066		ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	
C3067		ECUM1H221JV	C.CAPACITOR CH 50V 220P	1	
C3068,69		ECUM1H271JV	C.CAPACITOR CH 50V 270P	2	
C3070-72		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	3	
C3074		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C3076-78		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	3	
C3079		ECUM1E223ZFV	C.CAPACITOR CH 25V 0.022U	1	
C3080		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3081		ECUM1H470JCV	C.CAPACITOR CH 50V 47P	1	
C3082		ECUM1H100CCV	C.CAPACITOR CH 50V 10P	1	
C3083-86		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	4	
C3088		ECUM1H102JCN	C.CAPACITOR CH 50V 1000P	1	
C3089		ECUM1H221JCN	C.CAPACITOR CH 50V 220P	1	
C3090		ECUM1C473ZFV	C.CAPACITOR CH 16V 0.047U	1	
C3091		ECUX1H471JN	C.CAPACITOR CH 50V 470P	1	
C3092		ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	
C3093		ECUM1H560JCV	C.CAPACITOR CH 50V 56P	1	
C3094		ECUX1H391JCN	C.CAPACITOR CH 50V 390P	1	
C3095		ECUM1H390JCV	C.CAPACITOR CH 50V 39P	1	
C3096		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C3098,99		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C3100		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C3102		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3103		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C3107		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C3108		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C3109		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C3110		ECUM1H330JCV	C.CAPACITOR CH 50V 33P	1	
C3111		ECUM1H270JCV	C.CAPACITOR CH 50V 27P	1	
C3112		ECUM1H560JCV	C.CAPACITOR CH 50V 56P	1	
C3113		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C3114		ECUM1H681KBV	C.CAPACITOR CH 50V 680P	1	
C3115		ECUM1H392KBV	C.CAPACITOR CH 50V 3900P	1	
C3701,02		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	2	
C3703		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C3704-06		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	3	
C3707		ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	
C3708		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C3709		ECUM1H390JCV	C.CAPACITOR CH 50V 39P	1	
C3710		ECUM1H100CCV	C.CAPACITOR CH 50V 10P	1	
C3711		ECUM1H470JCV	C.CAPACITOR CH 50V 47P	1	
C3712		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C3713,14		ECUM1H270JCV	C.CAPACITOR CH 50V 27P	2	
C3715		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C3716		ECST1VY334	T.CAPACITOR 35V 0.33U	1	
C3717		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C3719		ECUM1H681KBV	C.CAPACITOR CH 50V 680P	1	
C3720		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C3721		ECUM1H151JV	C.CAPACITOR CH 50V 150P	1	
C3722		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8001		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C8002		ECUM1E223ZFV	C.CAPACITOR CH 25V 0.022U	1	
C8003		ECUM1H271JV	C.CAPACITOR CH 50V 270P	1	
C8004		ECUM1H471KBV	C.CAPACITOR CH 50V 470P	1	
C8005		ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	1	
C8006-18		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	13	
C8019		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C8020		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C8021		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C8022		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C8023,24		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C8025		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C8026		ECUM1H030CCV	C.CAPACITOR CH 50V 3P	1	
C8027		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C8028		ECEA0JSJ151	E.CAPACITOR 6.3V 150U	1	
C8029		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C8030		ECUM1H101JCV	C.CAPACITOR CH 50V 100P	1	
C8031-35		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	5	
C8036		ECUM1C474ZFM	C.CAPACITOR CH 16V 0.47U	1	
C8037		ECUM1H680JCV	C.CAPACITOR CH 50V 68P	1	
C8038		ECUM1H332KBV	C.CAPACITOR CH 50V 3300P	1	
C8039		ECEA1HKK0R1	E.CAPACITOR 50V 0.1U	1	
C8041		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C8042		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8043		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C8044		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8045		ECUM1H330JCV	C.CAPACITOR CH 50V 33P	1	
C8047,48		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C8049		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C8050		ECUM1H153ZFV	C.CAPACITOR CH 50V 0.015U	1	
C8051		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C8052		ECUM1H221JV	C.CAPACITOR CH 50V 220P	1	
C8053		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C8054		ECUM1H270JCV	C.CAPACITOR CH 50V 27P	1	
C8055		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C8056		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C8057		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8058,59		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
C8061		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	1	
C8062		ECUM1H270JCV	C.CAPACITOR CH 50V 27P	1	
C8063		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C8064		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8065		ECUM1H080CCV	C.CAPACITOR CH 50V 8P	1	
C8066		ECUM1H820JCV	C.CAPACITOR CH 50V 82P	1	
C8068		ECUM1H390JCV	C.CAPACITOR CH 50V 39P	1	
C8069		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8070		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C8071		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C8072		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C8075,76		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C8077		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8078		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C8079,80		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
C8081		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C8082		ECUM1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C8085		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8086		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C8095		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8102		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C8105		ECST1VY104	T.CAPACITOR 35V 0.1U	1	
C8106		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8108		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C8110		ECUM1H390JCV	C.CAPACITOR CH 50V 39P	1	
C8111		ECEA1CKA101	E.CAPACITOR 16V 100U	1	
C8112-15		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	4	
C8116		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C8117		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C8118		ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	1	
C8501		ECUM1E223ZFV	C.CAPACITOR CH 25V 0.022U	1	
C8502		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8503		ECUM1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C8504		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8506-08		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	3	
C8509		ECUM1H680JCV	C.CAPACITOR CH 50V 68P	1	
C8510		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8511,12		ECUM1H220JCV	C.CAPACITOR CH 50V 22P	2	
C8513		ECUM1H103KBV	C.CAPACITOR CH 50V 0.01U	1	
C8514,15		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C8516		ECUM1H152KBV	C.CAPACITOR CH 50V 1500P	1	
C8517		ECUM1H332KBV	C.CAPACITOR CH 50V 3300P	1	
C8518		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C8519,20		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
D3001,02		DAN202U	DIODE	2	
D3003		MA141K	DIODE	1	
D3004		DAN202U	DIODE	1	
D3005		MA141K	DIODE	1	
D8001		MA141K	DIODE	1	
D8002		MA141A	DIODE	1	
D8003		MA121	DIODE	1	
D8004		MA141A	DIODE	1	
DL8001		VLD0174	DELAY	1	
FL3001		ELB4C014	FILTER	1	
FL3002		ELB4E017	FILTER	1	
FL3003		ELB4A010	FILTER	1	
FL3004		VLF0720	FILTER	1	
FL3701		ELB4B028	FILTER	1	
FL3702		ELB4C010	FILTER	1	
FL3703		VLF0737	FILTER	1	
FL8001		ELB4B010	FILTER	1	
FL8002		ELB4B048	FILTER	1	
FL8003		VLF0625	FILTER	1	
FL8004		VLF0550	FILTER	1	
FL8006		VLF0734	FILTER	1	
FL8008		ELB4B024	FILTER	1	
FL8009		VLF0750	FILTER	1	
FL8501		VLF0733	FILTER	1	
IC3002		MST001MS	IC	1	
IC3003		AN3237FB	IC	1	
IC3004		MSM6965-3MS	IC	1	
IC3005		VC2031FP	IC	1	
IC3701		M52054FP	IC	1	
IC8001		M52059FP	IC	1	
IC8002		MSM6989MS	IC	1	
IC8003,04		BA7131F	IC	2	
IC8005		MSM6989MS	IC	1	
IC8006		MST001MS	IC	1	
IC8501		AN3592S	IC	1	
L3001		VLQEL05F101K	COIL 100UH	1	
L3002		VLQ0163F180	COIL 18UH	1	
L3004		VLQ0163J330	COIL 33UH	1	
L3005		VLQ0163J101	COIL 100UH	1	
L3006		VLQ0163J121	COIL 120UH	1	
L3007		VLQ0163F221	COIL 220UH	1	
L3008		VLQ0163F3R9	COIL 3.9UH	1	
L3009		VLQ0163J121	COIL 120UH	1	
L3010		VLQEL05F101K	COIL 100UH	1	
L3011		VLQEL04F101K	COIL 100UH	1	
L3012		VLQEL05F101K	COIL 100UH	1	
L3014		VLQEL05F101K	COIL 100UH	1	
L3016		VLQEL05F101K	COIL 100UH	1	
L3017		VLQ0163K151	COIL 150UH	1	
L3018		VLQ0163J330	COIL 33UH	1	
L3019		VLQ0163J150	COIL 15UH	1	
L3701		VLQ0163J100	COIL 10UH	1	
L3702		VLQ0163J390	COIL 39UH	1	
L3703		VLQ0163J220	COIL 22UH	1	
L3704		VLQ0163J100	COIL 10UH	1	
L3705		VLQEL05F101K	COIL 100UH	1	
L3706		VLQ0163F180	COIL 18UH	1	
L8003,04		VLQEL05F101K	COIL 100UH	2	
L8005		VLQEL04F101K	COIL 100UH	1	
L8006		VLQ0163K560	COIL	1	
L8008		VLQ0163K100	COIL 10UH	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
L8009		VLQ0163K560	COIL	1	
L8012		VLQEL05F101K	COIL 100UH	1	
L8013		VLQ0163K150	COIL 15UH	1	
L8014		VLQEL05F681K	COIL 680UH	1	
L8015		VLQ0163K121	COIL	1	
L8016		VLQEL05F101K	COIL 100UH	1	
L8017,18		VLQ0163K101	COIL 100UH	2	
L8019		VLQEL05F101K	COIL 100UH	1	
L8501		VLQ0163K100	COIL 10UH	1	
L8502		VLQ0163K330	COIL 33UH	1	
P3001		VJS2237	CONNECTOR	1	
P3701		VJR0496	CONNECTOR	1	
P8501		VJR0514	CONNECTOR	1	
P8502		VJR0368	CONNECTOR	1	
Q3001		2SD1820	TRANSISTOR	1	
Q3002		2SB1219	TRANSISTOR	1	
Q3003,04		2SC3931	TRANSISTOR	2	
Q3006,07		2SD1819	TRANSISTOR	2	
Q3009		2SD1819	TRANSISTOR	1	
Q3011		2SC3931	TRANSISTOR	1	
Q3012		2SD1819	TRANSISTOR	1	
Q3013		2SD1328	TRANSISTOR CHIP	1	
Q3014		FMW1	TRANSISTOR	1	
Q3015		2SD1819	TRANSISTOR	1	
Q3701-04		2SC3931	TRANSISTOR	4	
Q3705		2SB1218	TRANSISTOR	1	
Q8006-08		2SD1819	TRANSISTOR	3	
Q8009		XN4501	TRANSISTOR-RESISTOR	1	
Q8010		XN4601	TRANSISTOR-RESISTOR	1	
Q8013		XN4501	TRANSISTOR-RESISTOR	1	
Q8014		2SD1819	TRANSISTOR	1	
Q8016		XN4601	TRANSISTOR-RESISTOR	1	
Q8501		2SD1819	TRANSISTOR	1	
Q8502		XN6501	TRANSISTOR	1	
Q8503		XN4501	TRANSISTOR-RESISTOR	1	
Q8504		XN4601	TRANSISTOR-RESISTOR	1	
QR3003		GA1F4M	TRANSISTOR-RESISTOR	1	
QR3004		GN1F4M	TRANSISTOR-RESISTOR	1	
QR3005-12		GA1F4M	TRANSISTOR-RESISTOR	8	
QR3013		GA1L4M	TRANSISTOR-RESISTOR	1	
QR3014		GA1F4M	TRANSISTOR-RESISTOR	1	
QR3016		GA1L4M	TRANSISTOR-RESISTOR	1	
QR3017-19		GA1F4M	TRANSISTOR-RESISTOR	3	
QR3021		GA1F4M	TRANSISTOR-RESISTOR	1	
QR3022		GN1F4M	TRANSISTOR-RESISTOR	1	
QR3023,24		GA1F4M	TRANSISTOR-RESISTOR	2	
QR3025,26		GN1F4M	TRANSISTOR-RESISTOR	2	
QR3027		GA1L4M	TRANSISTOR-RESISTOR	1	
QR3029		GA1L4M	TRANSISTOR-RESISTOR	1	
QR3031		GA1L4M	TRANSISTOR-RESISTOR	1	
QR3032		FMG2	TRANSISTOR-RESISTOR	1	
QR3035-37		GA1F4M	TRANSISTOR-RESISTOR	3	
QR3038		XN1115	TRANSISTOR-RESISTOR	1	
QR8001		XN6212	TRANSISTOR-RESISTOR	1	
QR8002		GA1F4M	TRANSISTOR-RESISTOR	1	
QR8004,05		GA1F4M	TRANSISTOR-RESISTOR	2	
QR8006		FMW1	TRANSISTOR	1	
QR8007		FMG2	TRANSISTOR-RESISTOR	1	
QR8008,09		GA1F4M	TRANSISTOR-RESISTOR	2	
QR8010,11		GN1L4M	TRANSISTOR-RESISTOR	2	
QR8012,13		XN6212	TRANSISTOR-RESISTOR	2	
			RESISTORS		
R3003		ERJ3GEYG471	M.RESISTOR CH1/20W 470	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3004		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R3005		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R3006		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R3007		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R3008		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R3009		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R3010,11		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	2	
R3013-16		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	4	
R3017		ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
R3018		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R3019		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R3020		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R3021		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R3022		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R3023		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3025		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R3026		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R3027		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3028		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R3029		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R3030		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R3031,32		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	2	
R3033		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R3034		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R3036		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R3037		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R3039		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R3041		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R3042		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R3043		ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
R3044		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R3045		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R3046,47		ERJ3GEYJ270	M.RESISTOR CH1/20W 27	2	
R3048,49		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	2	
R3050		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3051		ERJ3GEYJ121	M.RESISTOR CH1/20W 120	1	
R3052		ERJ3GEYJ270	M.RESISTOR CH1/20W 27	1	
R3053		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R3056		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R3057,58		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R3059		ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
R3060		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R3061,62		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	2	
R3063		ERJ6GMYJ225	M.RESISTOR CH1/10W 2.2M	1	
R3066		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R3067,68		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R3069,70		ERJ3GEYG332	M.RESISTOR CH1/20W 3.3K	2	
R3071		ERJ3GEYG102	M.RESISTOR CH1/20W 1K	1	
R3072		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R3073		ERJ3GEYJ823	M.RESISTOR CH1/20W 82K	1	
R3074		ERJ3GEYG471	M.RESISTOR CH1/20W 470	1	
R3075,76		ERJ3GEYG102	M.RESISTOR CH1/20W 1K	2	
R3077		ERJ3GEYG152	M.RESISTOR CH1/20W 1.5K	1	
R3078		ERJ3GEYG102	M.RESISTOR CH1/20W 1K	1	
R3079,80		ERJ3GEYG332	M.RESISTOR CH1/20W 3.3K	2	
R3081		ERJ3GEYJ564	M.RESISTOR CH1/20W 560K	1	
R3082		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R3083		ERJ3GEYJ474	M.RESISTOR CH1/20W 470K	1	
R3084		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R3085		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R3087		ERJ3GEYG102	M.RESISTOR CH1/20W 1K	1	
R3088		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R3089		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R3090		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R3092		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R3093		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R3094		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R3095		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R3096		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R3097		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R3098		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R3099		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R3100		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3102		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
R3103,04		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3107		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R3108		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R3109		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R3110		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R3111,12		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	2	
R3113		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R3115,16		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R3117		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R3118		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R3119		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3120		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R3121		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R3124		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R3125,26		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R3127,28		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	2	
R3129		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R3130		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R3131,32		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	2	
R3133		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R3134		ERJ6GMYJ102	CHIP 1/10W 1K	1	
R3135		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R3136		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R3139,40		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	2	
R3141		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R3142		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R3143		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3144		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R3145		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R3701		ERJ3GEYJ183	M.RESISTOR CH1/20W 18K	1	
R3702		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R3703,04		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R3705		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R3706		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R3707		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R3708,09		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R3710-13		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	4	
R3714,15		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R3716		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R3717		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R3718		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	1	
R3719		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R3720		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R3721		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R3722		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R3723		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R3724		ERJ3GEYJ151	M.RESISTOR CH1/20W 150	1	
R3725		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R3726		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R3727		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R8001-03		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	3	
R8004		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R8005		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8009		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R8010		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R8011		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	1	
R8012		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8013		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R8014		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R8015		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R8016		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R8017		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R8018		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R8019		ERJ6GMYJ223	M.RESISTOR CH1/10W 22K	1	
R8020		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R8025,26		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R8027		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R8028		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R8029		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8030-33		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	4	
R8036		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R8037		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R8038		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R8039		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R8040,41		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R8042		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R8043		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R8044		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R8045,46		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	2	
R8047		ERJ6GMYJ681	M.RESISTOR CH1/10W 680	1	
R8048		ERJ6GMYJ223	M.RESISTOR CH1/10W 22K	1	
R8049		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R8050		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8051		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R8052		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R8053		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R8054		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R8055		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R8058		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R8059		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R8060		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R8061		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R8062		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8063		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R8064		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R8065		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R8066		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
R8067		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R8068		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R8069		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8070		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R8072		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R8073		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R8074		ERJ6GMYJ473	CHIP 1/10W 47K	1	
R8078		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R8079		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R8080		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R8088		ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
R8095		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
R8096		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R8097		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R8100		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R8101		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R8102		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R8103		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R8105		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8106		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R8107,08		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R8109		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R8110		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R8111		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R8113		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R8116		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R8121,22		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	2	
R8123,24		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	2	
R8126		ERJ3GEYJ683	M.RESISTOR CH1/20W 68K	1	
R8127		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R8501		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R8502		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R8503		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R8504		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R8505		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R8506		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R8507		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R8508		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R8509		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R8510		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R8511		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R8512		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	
R8513		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R8514		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	1	
R8515		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R8516		ERJ3GEYJ821	M.RESISTOR CH1/20W 820	1	
R8517		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R8518		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R8519		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R8520		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R8521		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R8522		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8523		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R8524		ERJ3GEYJ223	M.RESISTOR CH1/20W 22K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R8525,26		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	2	
R8527		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R8528		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
VR3001		EVM7NSW00B23	V.RESISTOR 2K	1	
VR3002,03		EVM7NSW00B24	V.RESISTOR 20K	2	
VR3004		EVM7NSW00B54	V.RESISTOR 50K	1	
VR3005		EVM7NSW00B23	V.RESISTOR 2K	1	
VR3006,07		EVM7NSW00B24	V.RESISTOR 20K	2	
VR3008		EVM7NSW00B53	V.RESISTOR 5K	1	
VR3009		EVM7NSW00B14	V.RESISTOR 10K	1	
VR3011		EVM7NSW00B54	V.RESISTOR 50K	1	
VR3012		EVM7NSW00B14	V.RESISTOR 10K	1	
VR3013		EVM7NSW00B52	V.RESISTOR 500	1	
VR3014		EVM7NSW00B25	V.RESISTOR 200K	1	
VR3015		EVM7NSW00B14	V.RESISTOR 10K	1	
VR3016		EVM7NSW00B54	V.RESISTOR 50K	1	
VR3701		EVM7NSW00B14	V.RESISTOR 10K	1	
VR8001,02		EVM7NSW00B13	V.RESISTOR 47K	2	
VR8003		EVM7NSW00B14	V.RESISTOR 10K	1	
VR8004		EVM7NSW00B54	V.RESISTOR 50K	1	
VR8005		EVM7NSW00B23	V.RESISTOR 2K	1	
VR8007		EVM7NSW00B24	V.RESISTOR 20K	1	
VR8008		EVM7NSW00B15	V.RESISTOR 100K	1	
X8001		VSX0188	CHRISTAL OSCILLATOR	1	
			MISCELLANEOUS		
		VSC2721	BARRIER	1	
	■	VEP04261A	HI-FI AUDIO C.B.A.		(NLA)
			CAPACITORS		
C4501		ECEA1CKA101	E.CAPACITOR 16V 100U	1	
C4502,03		ECEA1VKG6R8	E.CAPACITOR 35V 6.8U	2	
C4504		ECUM1E223KBN	C.CAPACITOR CH 25V 0.023U	1	
C4505		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C4506		ECUM1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C4507		ECEA0JSN470	E.CAPACITOR 6.3V 47U	1	
C4508		ECEA1CSN220	E.CAPACITOR 16V 22U	1	
C4509		ECUM1E103KBN	C.CAPACITOR CH 25V 0.01U	1	
C4510		ECEA1VSN2R2	E.CAPACITOR 35V 2.2U	1	
C4511		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C4512		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4513		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C4514		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C4515		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C4516		ECEA1ASN100	E.CAPACITOR 10V 10U	1	
C4517		ECEA1CKS470	E.CAPACITOR 16V 47U	1	
C4518		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C4519		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C4520,21		ECEA1CKK100	E.CAPACITOR 16V 10U	2	
C4522		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C4523		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4524		ECEA1CSE680	E.CAPACITOR 16V 68U	1	
C4525		ECEA1VSN2R2	E.CAPACITOR 35V 2.2U	1	
C4526		ECUM1E103KBN	C.CAPACITOR CH 25V 0.01U	1	
C4527		ECEA1CSN220	E.CAPACITOR 16V 22U	1	
C4528		ECEA0JSN470	E.CAPACITOR 6.3V 47U	1	
C4529		ECUM1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C4530		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C4531		ECUM1E223KBN	C.CAPACITOR CH 25V 0.023U	1	
C4532,33		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	2	
C4534		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C4535		ECUM1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C4536		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C4537,38		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	2	
C4539-41		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	3	
C4542		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C4543		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4544,45		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C4546		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4547		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C4548		ECUM1H271JV	C.CAPACITOR CH 50V 270P	1	
C4549,50		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	2	
C4551,52		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	2	
C4553		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C4554		ECUM1H222KBV	C.CAPACITOR CH 50V 2200P	1	
C4555		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C4556		ECUM1H471KBV	C.CAPACITOR CH 50V 470P	1	
C4557,58		ECEA1CKK100	E.CAPACITOR 16V 10U	2	
C4559		ECQV1H473JZ	P.CAPACITOR 50V 0.047U	1	
C4560		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C4561		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C4562-64		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	3	
C4568		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C4569		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C4570		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C4571		ECEA0GKS101	E.CAPACITOR 100U	1	
C4575		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C4576		ECEA1CKA101	E.CAPACITOR 16V 100U	1	
C4577		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C4578,79		ECEA1CKK100	E.CAPACITOR 16V 10U	2	
C4580		ECEA1CKS470	E.CAPACITOR 16V 47U	1	
C4581		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C4582		ECEA1HKKR47	E.CAPACITOR 50V 0.47U	1	
C4583		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C4584		ECEA1ASE101	E.CAPACITOR 10V 100U	1	
C4585		ECUM1H181JV	C.CAPACITOR CH 50V 180P	1	
C4586		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C4587		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C4588		ECUM1H181JV	C.CAPACITOR CH 50V 180P	1	
C4589		ECUM1H102KBV	C.CAPACITOR CH 50V 1000P	1	
C4590		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	1	
C4591		ECEA1ASE101	E.CAPACITOR 10V 100U	1	
C4592		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C4593		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C4595,96		ECUM1E104ZFN	C.CAPACITOR CH 25V 0.1U	2	
C4597,98		ECUM1H272KBV	C.CAPACITOR CH 50V 2700U	2	
C4599,00		ECEA1ASN100	E.CAPACITOR 10V 10U	2	
C4601,02		ECEA1AKA330	E.CAPACITOR 10V 33U	2	
C4603,04		ECEA0JKA101	E.CAPACITOR 6.3V 100U	2	
C4605		ECEA1CKA101	E.CAPACITOR 16V 100U	1	
C4606		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
D4501		DAP202U	DIODE	1	
D4502-06		MA141K	DIODE	5	
D4507		DAN202U	DIODE	1	
D4508,09		MA157	DIODE	2	
D4510		MA141K	DIODE	1	
D4511		DA204U	DIODE	1	
D4513		MA141K	DIODE	1	
D4514,15		MA3056	DIODE	2	
D4516		MA143	DIODE	1	
D4517		MA3056	DIODE	1	
D4520		MA141WA	DIODE	1	
FL4501		VLF0736	FILTER	1	
FL4502		VLF0735	FILTER	1	
IC4501		AN3972FB	IC	1	
IC4502		AN3932S	IC	1	
IC4503		AN3799S	IC	1	
IC4504		BA3308	IC	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
L4501		VLQEL05F101K	COIL 100UH	1	
L4503-05		VLQEL05F101K	COIL 100UH	3	
P4501		VJP1610T	CONNECTOR	1	
P4502		VJS2141	CONNECTOR	1	
P4503		VJS2136	CONNECTOR	1	
P4506		VJP1608T	CONNECTOR(MALE)	1	
P4507		VJP1607T	CONNECTOR(MALE)	1	
Q4501		2SD1328	TRANSISTOR CHIP	1	
Q4502		2SB1218	TRANSISTOR	1	
Q4503		2SD1328	TRANSISTOR CHIP	1	
Q4504		2SB1218	TRANSISTOR	1	
Q4505-07		2SD1819	TRANSISTOR	3	
Q4508		2SD1820	TRANSISTOR	1	
Q4509		2SB1218	TRANSISTOR	1	
Q4512		2SD1819	TRANSISTOR	1	
Q4518		2SD1819	TRANSISTOR	1	
Q4519		2SD601	TRANSISTOR CHIP	1	
Q4520		2SB1218	TRANSISTOR	1	
Q4521		2SB956	TRANSISTOR	1	
Q4522,23		2SB970X	TRANSISTOR	2	
Q4524		2SB956	TRANSISTOR	1	
Q4525		2SD1819	TRANSISTOR	1	
Q4526		2SD1328	TRANSISTOR CHIP	1	
Q4527,28		2SA1531	TRANSISTOR	2	
Q4529,30		2SD1819	TRANSISTOR	2	
QR4501		GA1L4M	TRANSISTOR-RESISTOR	1	
QR4502		GN1L4M	TRANSISTOR-RESISTOR	1	
QR4503		GA1L4M	TRANSISTOR-RESISTOR	1	
QR4504		FMW1	TRANSISTOR	1	
QR4505-08		GA1L4M	TRANSISTOR-RESISTOR	4	
QR4509		GA1F4Z	TRANSISTOR-RESISTOR	1	
QR4510,11		GA1L4M	TRANSISTOR-RESISTOR	2	
QR4512		FMW1	TRANSISTOR	1	
QR4513,14		GA1L4M	TRANSISTOR-RESISTOR	2	
QR4515		GN1L4M	TRANSISTOR-RESISTOR	1	
QR4516		FMG2	TRANSISTOR-RESISTOR	1	
			RESISTORS		
R4501		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	1	
R4502		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R4503		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R4504,05		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	2	
R4506		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R4507,08		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R4509		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R4510		EROS2CKG1002	M.RESISTOR 1/4W 10K	1	
R4511		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R4512		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R4513		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R4514		ERJ3GEYJ823	M.RESISTOR CH1/20W 82K	1	
R4515,16		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R4517		ERJ3GEYJ273	M.RESISTOR CH1/20W 27K	1	
R4518		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R4519		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R4520		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R4521		EROS2CKG1202	M.RESISTOR 1/4W 12K	1	
R4522		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4523		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R4526		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	1	
R4527		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R4528		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R4529		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R4530,31		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	2	
R4532		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R4533		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R4534		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4535		ERJ3GEYJ474	M.RESISTOR CH1/20W 470K	1	
R4536,37		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	2	
R4538		ERJ3GEYJ474	M.RESISTOR CH1/20W 470K	1	
R4539		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4540		ERJ3GEYJ393	M.RESISTOR CH1/20W 39K	1	
R4541,42		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	2	
R4543		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R4544		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R4545		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
R4546		ERJ3GEYJ121	M.RESISTOR CH1/20W 120	1	
R4547		ERJ3GEYJ390	M.RESISTOR CH1/20W 39	1	
R4548		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R4549		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R4550		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	1	
R4551,52		ERJ3GEYJ270	M.RESISTOR CH1/20W 27	2	
R4553		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4554		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R4555		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4556		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R4557		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R4558,59		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	2	
R4560		ERJ3GEYJ224	M.RESISTOR CH1/20W 220K	1	
R4561		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R4562,63		VSF0014A08	IC PROTECTOR	2	
R4564		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	1	
R4565		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R4568		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R4569		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
R4570,71		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	2	
R4572		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	1	
R4573		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R4574		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R4575		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R4576,77		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	2	
R4578		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R4579		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R4580		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R4581		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	1	
R4582,83		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	2	
R4584		ERJ3GEYJ561	M.RESISTOR CH1/20W 560	1	
R4585		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R4586		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R4587		ERJ3GEYJ564	M.RESISTOR CH1/20W 560K	1	
R4588		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R4589		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R4590		VRE0034E163	V.RESISTOR 16K	1	
R4591		VRE0034E273	RESISTOR	1	
R4592		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	1	
R4593,94		ERJ3GEYJ472	M.RESISTOR CH1/20W 4.7K	2	
R4595		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R4596		ERJ3GEYJ563	M.RESISTOR CH1/20W 56K	1	
R4597		ERJ3GEYJ105	M.RESISTOR CH1/20W 1M	1	
R4598		ERJ8GCYJ221	M.RESISTOR CH 1/8W 220	1	
R4599		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R4600		ERJ3GEYJ124	M.RESISTOR CH1/20W 120K	1	
R4601,02		ERJ3GEYJ154	M.RESISTOR CH1/20W 150K	2	
R4603		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R4604		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R4605		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R4606		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R4607		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	
R4608		VRE0034E273	RESISTOR	1	
R4609		VRE0034E163	V.RESISTOR 16K	1	
R4610		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R4611		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R4612		ERJ3GEYJ334	M.RESISTOR CH1/20W 330K	1	
R4613,14		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	2	
R4615		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R4616,17		ERJ3GEYJ123	M.RESISTOR CH1/20W 12K	2	
R4618,19		ERJ3GEYJ562	M.RESISTOR CH1/20W 5.6K	2	
R4621		ERJ3GEYJ122	M.RESISTOR CH1/20W 1.2K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R4622,23		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	2	
R4624-27		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	4	
R4628,29		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	2	
R4630,31		ERJ3GEYJ221	M.RESISTOR CH1/20W 220	2	
R4632,33		ERJ3GEYJ682	M.RESISTOR CH1/20W 6.8K	2	
R4634,35		ERJ3GEYJ333	M.RESISTOR CH1/20W 33K	2	
R4636,37		ERJ3GEYJ222	M.RESISTOR CH1/20W 2.2K	2	
R4638,39		ERJ3GEYJ473	M.RESISTOR CH1/20W 47K	2	
R4640,41		ERDS2T0	C.RESISTOR 1/4W 0	2	
VR4501,02		EVM7NSX00B14	V.RESISTOR 10K	2	
VR4503		EVM7NSX00B23	V.RESISTOR 2K	1	
VR4504		EVM7NSX00B24	V.RESISTOR 20K	1	
VR4505		EVM7NSX00B54	V.RESISTOR 50K	1	
VR4507		EVM7NSX00B14	V.RESISTOR 10K	1	
VR4508		EVM7NSX00B24	V.RESISTOR 20K	1	
VR4509		EVM7NSX00B53	V.RESISTOR 5K	1	
VR4510		EVM7NSX00B15	V.RESISTOR 100K	1	
			MISCELLANEOUS		
		VWJ0350	FLEXIBLE CARD	1	P4503-P5501
	■	VEP05132C	VIDEO HEAD AMP C.B.A.		(NLA)
			CAPACITORS		
C5001		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5002		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C5003		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5004		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C5005		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5006		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C5007		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5008		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C5009		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C5010		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5011		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5012		ECUM1H470JCV	C.CAPACITOR CH 50V 47P	1	
C5013		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5014		ECUM1H470JCV	C.CAPACITOR CH 50V 47P	1	
C5015		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5016,17		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C5018		ECUM1H470JCV	C.CAPACITOR CH 50V 47P	1	
C5019		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5020		ECUM1H470JCV	C.CAPACITOR CH 50V 47P	1	
C5021		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5022,23		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	2	
C5026,27		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	2	
C5029		ECUM1H121JCV	C.CAPACITOR CH 50V 120P	1	
C5030		ECUM1H151JV	C.CAPACITOR CH 50V 150P	1	
C5031		ECUM1H390JCV	C.CAPACITOR CH 50V 39P	1	
C5032-35		ECUM1H223KBN	C.CAPACITOR CH 50V 0.022U	4	
C5036-39		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	4	
IC5001		AN3311S	IC	1	
L5001		VLQEL04F101K	COIL 100UH	1	
L5004		VLQ0163K100	COIL 10UH	1	
L5005		VLQEL04F120K	COIL 12UH	1	
P5001		VJP2243	CONNECTOR (MALE)	1	
P5002		VJS2236T	CONNECTOR	1	
P5003		VJP2260	CONNECTOR (MALE)	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q5001		FMS1	TRANSISTOR-RESISTOR	1	
Q5002-05		2SD1328	TRANSISTOR CHIP	4	
Q5006		FMS1	TRANSISTOR-RESISTOR	1	
Q5007-10		2SD1328	TRANSISTOR CHIP	4	
Q5011		2SB1218	TRANSISTOR	1	
Q5012		2SA812	TRANSISTOR	1	
Q5013		2SA1175	TRANSISTOR	1	
QR5001,02		FMG1	TRANSISTOR-RESISTOR	2	
QR5004,05		FMA2	TRANSISTOR-RESISTOR	2	
			RESISTORS		
R5001		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5002		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5003		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5004-06		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	3	
R5007		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5008		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5009		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5010-12		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	3	
R5013		ERJ3GEYJ100	M.RESISTOR CH1/20W 10	1	
R5014		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5015		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5016		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5017-19		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	3	
R5020		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5021		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5022		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5023-25		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	3	
R5026		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R5027-30		ERJ3GEYJ182	M.RESISTOR CH1/20W 1.8K	4	
R5031		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R5032		ERJ3GEYJ681	M.RESISTOR CH1/20W 680	1	
R5033,34		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	2	
R5035		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5037		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R5038		ERJ3GEYJ391	M.RESISTOR CH1/20W 390	1	
R5039		ERJ3GEYJ271	M.RESISTOR CH1/20W 270	1	
R5040		ERJ8GCYJ4R7	CHIP 1/8W 4.7	1	
R5041-44		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	4	
R5045-48		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	4	
R5049		ERJ3GEY0R00	M.RESISTOR CH1/20W 0	1	
R5050		ERJ3GEYJ100	M.RESISTOR CH1/20W 10	1	
			MISCELLANEOUS		
		VSC2609	SHIELD BOX	1	
		VMZ1298	BARRIER	1	
	■	VEP05133B	HI-FI AUDIO HEAD AMP C.B.A.		(NLA)
			CAPACITORS		
C5501		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5502		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C5503		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5504		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C5505		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5506		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C5507		ECUM1C105ZFM	C.CAPACITOR CH 16V 1U	1	
C5508		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	1	
C5509		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C5510		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5512		ECUM1H182KBV	C.CAPACITOR CH 50V 1800P	1	
C5513		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5514		ECUM1H182KBV	C.CAPACITOR CH 50V 1800P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C5515		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5518		ECUM1H182KBV	C.CAPACITOR CH 50V 1800P	1	
C5519		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5520		ECUM1H182KBV	C.CAPACITOR CH 50V 1800P	1	
C5521		ECUM1E103KBV	C.CAPACITOR CH 25V 0.01U	1	
C5526-29		ECUM1E223ZFV	C.CAPACITOR CH 25V 0.022U	4	
C5530-33		ECUM1E473ZFN	C.CAPACITOR CH 25V 0.047U	4	
IC5501		AN3311S	IC	1	
L5501		VLQEL04F101K	COIL 100UH	1	
P5501		VJS2117	CONNECTOR	1	
P5502		VJS2118	CONNECTOR	1	
P5503		VJP2271	CONNECTOR (MALE)	1	
Q5501		XN6401	TRANSISTOR	1	
Q5502-05		2SD1328	TRANSISTOR CHIP	4	
Q5506		XN6401	TRANSISTOR	1	
Q5507-10		2SD1328	TRANSISTOR CHIP	4	
QR5501,02		FMG1	TRANSISTOR-RESISTOR	2	
QR5504,05		FMA2	TRANSISTOR-RESISTOR	2	
			RESISTORS		
R5501		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5502		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5503		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5504		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R5505		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R5506		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R5507		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5508		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5509		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5510		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R5511		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R5512		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R5513		ERJ3GEYJ100	M.RESISTOR CH1/20W 10	1	
R5514		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5515		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5516		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5517		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R5518		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R5519		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R5520		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5521		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R5522		ERJ3GEYJ272	M.RESISTOR CH1/20W 2.7K	1	
R5523		ERJ3GEYJ822	M.RESISTOR CH1/20W 8.2K	1	
R5524		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R5525,26		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R5531		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	1	
R5535		ERJ3GEYJ152	M.RESISTOR CH1/20W 1.5K	1	
R5536,37		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	2	
R5538		ERJ6GMYJ332	CHIP 1/10W 3.3K	1	
R5539		ERJ3GEYJ332	M.RESISTOR CH1/20W 3.3K	1	
R5540-43		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	4	
			MISCELLANEOUS		
		VSC2605	SHIELD	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEP02318A	DRIVE C.B.A.		(NLA)
			CAPACITORS		
C2601		ECEA1CKS470	E.CAPACITOR 16V 47U	1	
C2602-04		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	3	
C2605-07		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	3	
C2608		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C2609		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C2610		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C2611		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C2612,13		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
C2614		ECEA1CKS470	E.CAPACITOR 16V 47U	1	
C2615		ECUM1H221JV	C.CAPACITOR CH 50V 220P	1	
C2616,17		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	2	
C2618		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C2619		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C2620		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C2621		ECUM1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C2622-24		ECUM1C333ZFV	C.CAPACITOR CH 16V 0.033U	3	
C2625-27		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	3	
C2628		ECUM1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C2630		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
D2601		DAN202U	DIODE	1	
D2602		MA141K	DIODE	1	
IC2601		TA8402F	IC	1	
IC2602		AN3819FBS	IC	1	
IC2603		UN207	IC	1	
IC2604		ON2170LF	IC	1	
P2601		VJP2246	CONNECTOR	1	
P2602		VJS2582B015	CONNECTOR	1	
P2603		VJS2325	CONNECTOR	1	
P2604,05		VJP2271	CONNECTOR (MALE)	2	
Q2601-03		2SB956	TRANSISTOR	3	(Q,R,S)
Q2604		2SD1819	TRANSISTOR	1	
			RESISTORS		
R2601-03		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	3	
R2604,05		ERJ8GCYJ1R8	M.RESISTOR CH 1/8W 1.8	2	
R2606		ERJ8GCYJ2R2	M.RESISTOR CH 1/8W 2.2	1	
R2607		ERJ3GEYJ153	M.RESISTOR CH1/20W 15K	1	
R2611		VRE0049	V.RESISTOR	1	
R2612		ERJ3GEYJ392	M.RESISTOR CH1/20W 3.9K	1	
R2613		ERJ3GEYJ274	M.RESISTOR CH1/20W 270K	1	
R2614		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R2615		ERJ3GEYJ102	M.RESISTOR CH1/20W 1K	1	
R2616		ERJ3GEYJ471	M.RESISTOR CH1/20W 470	1	
R2617		ERJ3GEYJ121	M.RESISTOR CH1/20W 120	1	
R2618		ERJ3GEYJ101	M.RESISTOR CH1/20W 100	1	
R2619,20		ERJ3GEYJ103	M.RESISTOR CH1/20W 10K	2	
R2621		ERJ3GEYJ104	M.RESISTOR CH1/20W 100K	1	
R2622		ERJ3GEYJ331	M.RESISTOR CH1/20W 330	1	
Z2601		VMZ1092		1	
			MISCELLANEOUS		
	■	VMD1275	REEL SENSOR HOLDER		

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEP06515C	OPERATION C.B.A.		(NLA)
D6301		MA151A	DIODE	1	
D6302,6303		MA151WA	DIODE	2	
D6305-6311		LN1261C	LED	7	
D6312		LN1361C	LED	1	
QR6301		UN2114	TRANSISTOR-RESISTOR	1	
R6301		ERJ8GMYJ330	C.RESISTOR CH 1/8W 33	1	
R6302,6303		ERJ6GMYJ330	C.RESISTOR CH 1/10W 33	2	
R6304		ERJ6GMYJ103	C.RESISTOR CH 1/10W 10K	1	
R6305		ERJ6GMYJ181	C.RESISTOR CH 1/10W 180	1	
R6306		ERJ6GMYJ221	C.RESISTOR CH 1/10W 220	1	
R6307		ERJ6GMYJ271	C.RESISTOR CH 1/10W 270	1	
R6308		ERJ6GMYJ471	C.RESISTOR CH 1/10W 470	1	
R6309		ERJ6GMYJ820	C.RESISTOR CH 1/10W 820	1	
R6310		ERJ6GMYJ182	C.RESISTOR CH 1/10W 1.8K	1	
R6311		ERJ6GMYJ330	C.RESISTOR CH 1/10W 33	1	
R6312		ERJ6GMYJ390	C.RESISTOR CH 1/10W 39	1	
P6301		VJS2694	CONNECTOR(18P)	1	
P6302		VJS2695	CONNECTOR(6P)	1	
P6303		VJS2696	CONNECTOR(5P)	1	
	■	VEK4033	SUB OPERATION C.B.A.		(NLA)
D6401-03		MA165	DIODE	3	
D6404		PG2222SY	DIODE	1	
P6401		VJS2582B006	CONNECTOR	1	
P6402		VJP1608T	CONNECTOR(MALE)	1	
			RESISTORS		
R6401		ERDS2TJ681	C.RESISTOR 1/4W 680	1	
R6402		ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
SW6401,02		EVQQSU04W	SWITCH	2	
SW6403		ESD1132333	SWITCH	1	
SW6404		ESD1131233	SWITCH	1	
	■	VEK3976	EARPHONE JACK C.B.A.		(NLA)
			CAPACITORS		
C4301		ECEA1CKS470	E.CAPACITOR 16V 47U	1	
J4301		VJJ0203	EARPHONE JACK	1	
			RESISTORS		
R4301		ERDS2TJ820	C.RESISTOR 1/4W 82	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEK3970	START/STOP C.B.A.		(NLA)
S1501		EVQQSU04W	SWITCH	1	
	■	VEK3455	TAKE-UP REEL SENSOR C.B.A.		(NLA)
		ON2170LF	IC	1	

3. VW-AMC2E/B Mechanical Replacement Parts List

Note:1.* Be sure to make your orders of replacement parts according to this list.
2.IMPORTANT SAFETY NOTICE
Components identified with the mark <!> have the special characteristics for safety. When replacing any of these components,use only the same type.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
***********		VW-AMC2E/B			
2(1)		VKM1087	TOP PLATE	1	
3(1)		VJA0481	AC CORD	1	VW-AMC2E<!>
3(1)		VJA0480	AC CORD	1	VW-AMC2B<!>
4(1)		VMZ1102	BARRIER (INNER)	1	<!>
5(1)		VKU0266	BOTTOM PLATE UNIT	1	
6(1)		VYP2690	FRONT PANEL	1	
8(1)		VYP2077	SIDE PANEL (L) UNIT	1	
9(1)		VGQ1346	SW HOLDER	1	
15(1)		VJF0107	BUSHING	1	<!>
16(1)		VSC2149	HEAT SINK	1	
17(1)		VMP1448	HEAT SINK	1	
20(1)		VYP2078	SIDE PANEL (R)	1	VW-AMC2E
20(1)		VYP2075	SIDE PANEL (R)	1	VW-AMC2B
21(1)		VMZ1103	BARRIER (OUTER)	1	<!>

4. VW-AMC2E/B Electrical Replacement Parts List

Note:
1. * Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
   Components identified with the mark <!> have the special characteristics for safety. When replacing any of these components, use only the same type.
3. Unless otherwise specified,
   All resistors are in OHMS, K=1,000 OHMS. All capacitors are in MICRO-FARADS(uf), P=uuF.
4. The P.C.Board units marked width'■'show below the main assembled parts.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
**********		VW-AMC2E/B			
		VEP61011C	MAIN C.B.A.	1	VW-AMC2E(NLA) INCLUDING THE PRIMARY COIL CONTROL C.B.A.(VEP60050A), CHARGE CONTROL C.B.A.(VEP60051B).
		VEP61011B	MAIN C.B.A.	1	VW-AMC2B(NLA) INCLUDING THE PRIMARY COIL CONTROL C.B.A.(VEP60050A), CHARGE CONTROL C.B.A.(VEP60051B).
		VEP60050A	PRIMARY COIL C.B.A.	1	(NLA)
		VEP60051B	CHARGE CONTROL C.B.A.	1	(NLA)
		VEP60049A	LED C.B.A.	1	(NLA)
	■	VEP61011C	MAIN C.B.A.		VW-AMC2E(NLA)
		VEP61011B			VW-AMC2B(NLA)
C05		ECQU2A104MNB	M.CAPACITOR 100V 0.01U	1	
C06-08		VCK0046	C.CAPACITOR 1000P	3	
C09		ECKD2H151KB	C.CAPACITOR 500V 150P	1	
C10		ECOS2GG470D	P.CAPACITOR 400V 47P	1	
C11		ECQE2104KF	P.CAPACITOR 0.1U	1	
C12		ECCD3A470KGE	C.CAPACITOR 1KV 47P	1	
C13		ECKD2H101KB	C.CAPACITOR 500V 100P	1	
C14		ECEA1VGE330	E.CAPACITOR 35V 33U	1	
C15		ECEA1VFE101	E.CAPACITOR 35V 100U	1	
C16,17		ECEA1EFE471L	E.CAPACITOR 25V 470U	2	
C18,19		ECEA1CKS100	E.CAPACITOR 16V 10U	2	
C20		ECEA1EGE471	E.CAPACITOR 25V 470U	1	
C21		ECEA1VFE270	E.CAPACITOR 35V 27U	1	
C22		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C23		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C24,25		ECKF1H103ZF	C.CAPACITOR 50V 0.01U	2	
C26		VCK0046	C.CAPACITOR 1000P	1	
C101		ECUM1E104ZFM	CHIP 25V 0.1U	1	
C102		ECUM1H471KBN	CHIP 50V 470P	1	
C103		ECUM1H222KBN	CHIP 50V 2200P	1	
C104		ECEA1EK4R7	E.CAPACITOR 25V 4.7U	1	
C105		ECUM1H104KBM	C.CAPACITOR CH 50V 0.1U	1	
C201,02		ECUM1H104KBM	C.CAPACITOR CH 50V 0.1U	2	
C203		ECUM1H102KBN	CHIP 50V 1000P	1	
C204		ECUM1E224ZFM	CHIP 25V 0.22U	1	
C206,07		ECUM1H270JCN	CHIP 50V 27P	2	
C208		ECUM1E104ZFM	CHIP 25V 0.1U	1	
			DIODES		
D01		S1WBA60	DIODE	1	
D02		AP01C	DIODE	1	
D03		ERA82-004	DIODE	1	
D04		MA4270L	DIODE	1	
D05,06		ERA22-04	DIODE	2	
D07		MA649	DIODE	1	
D08		MA4110M	DIODE	1	
D09		31DQ04FC6	DIODE	1	
D10		31DQ04FC5	DIODE	1	
D11-14		MA165	DIODE	4	
D15		ERA22-04	DIODE	1	
D16-18		MA4062M	DIODE	3	
D19		ERA22-04	DIODE	1	
D20,21		11ES1	DIODE	2	
D101		MA151K	DIODE	1	
D102		MA3051M	DIODE	1	
D201		MA151WA	DIODE	1	
D202		MA3051M	DIODE	1	
D203,04		MA151K	DIODE	2	
D206,07		MA3047M	DIODE	2	
D208		MA3047M	DIODE	1	
			FUSE		
F01		XBA2C10TB0	FUSE	1	
			INTEGRATED CIRCUITS		
IC01		HA178L05	IC	1	
IC101		M51976FP	IC	1	
IC201		UPC324G2	IC	1	
IC202		MN1551VMY	IC	1	
			DC JACK		
JK1		VJJ0174	DC JACK	1	
			COILS		
L02		ELF18D293C	COIL	1	VW-AMC2E
L02		ELF18D290A	COIL	1	VW-AMC2B
L03		ELF18D293C	COIL	1	
L04		VLQ0292	COIL	1	
L5,L6		VLP0043	COIL	2	
L07,08		VLP0067	COIL	2	
			CONNECTORS		
P1,P2		VJP1141	CONNECTOR(MALE) 2P	2	
P101		VJR0392	CONNECTOR	1	
P103		VJR0246	CONNECTOR	1	
P201,02		VJR0391	CONNECTOR	2	
			PHOTO COUPLER		
PC01		PC111A	PHOTO COUPLER	1	
			TRANSISTORS		
Q01		2SK903	TRANSISTOR	1	
Q02-04		2SB952	TRANSISTOR	3	(P,Q)
Q05		2SD1458	TRANSISTOR	1	
Q06,07		2SD636	TRANSISTOR	2	(Q,R,S)
Q201-03		2SD601	TRANSISTOR CHIP	3	(Q,R,S)
Q204		2SB709A	TRANSISTOR CHIP	1	
Q205		2SB709A	TRANSISTOR	1	
			COMBINATION PARTS (TRANSISTOR & RESISTORS)		
QR201		FA1A4P	TRANSISTOR-RESISTOR	1	
QR202		UN2122	TRANSISTOR-RESISTOR	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
QR203-05		FA1A4P	TRANSISTOR-RESISTOR	3	
			RESISTORS		
R01		ERC12GM334	S.RESISTOR 1/2W 330K	1	
R02-05		ERDS2TJ823	C.RESISTOR 1/4W 82K	4	
R06,07		ERG2SJ333	M.RESISTOR 2W 33K	2	
R08		ERX1SJR82	M.RESISTOR 1W 0.82	1	
R09		ERDS2TJ221	C.RESISTOR 1/4W 220	1	
R10		ERDS2TJ470	C.RESISTOR 1/4W 47	1	
R11		ERDS2TJ223	C.RESISTOR 1/4W 22K	1	
R12		ERDS2TJ183	C.RESISTOR 1/4W 18K	1	
R13		ERDS2TJ331	C.RESISTOR 1/4W 330	1	
R14		EROS2CKG8201	M.RESISTOR 1/4W 8.2K	1	
R15		ERDS2TJ181	C.RESISTOR 1/4W 180	1	
R16		ERDS2TJ821	C.RESISTOR 1/4W 820	1	
R17,18		ERDS2TJ103	C.RESISTOR 1/4W 10K	2	
R19		ERDS1TJ101	C.RESISTOR 1/2W 100	1	
R20,21		ERDS1TJ181	C.RESISTOR 1/2W 180	2	
R22		ERX1SJR33	M.RESISTOR 1W 0.33	1	
R23		ERDS2TJ100	C.RESISTOR 1/4W 10	1	
R24		ERDS2TJ220	C.RESISTOR 1/4W 22	1	
R25		ERD2FCG470	C.RESISTOR 2W 47	1	
R26		ERG1SJ221	M.RESISTOR 1W 220	1	
R27		ERDS2TJ273	C.RESISTOR 1/4W 27K	1	
R101		ERJ6GMYJ823	CHIP 1/10W 82K	1	
R102		ERJ6GMYJ391	CHIP 1/10W 390	1	
R103		ERJ6GMYJ472	CHIP 1/10W 4.7K	1	
R104,05		ERJ6GMYJ223	CHIP 1/10W 22K	2	
R106		ERJ6GMYJ153	CHIP 1/10W 15K	1	
R107		ERJ6GMYJ101	CHIP 1/10W 100	1	
R108		ERJ6GMYJ220	M.RESISTOR CH1/16W 22	1	
R201		ERJ6GMY0R00	CHIP 1/16W 0	1	
R203		ERJ6GMYJ563	CHIP 1/10W 56K	1	
R204		ERJ6GMYJ102	CHIP 1/10W 1K	1	
R206		ERJ6GMY0R00	CHIP 1/16W 0	1	
R207		ERJ6GMYG822	M.RESISTOR CH1/16W 8.2K	1	
R208		ERJ6GMYJ682	CHIP 1/10W 6.8K	1	
R209		ERJ6GMYJ223	CHIP 1/10W 22K	1	
R210		ERJ6GMYJ682	CHIP 1/10W 6.8K	1	
R211,12		ERJ6GMYJ562	CHIP 1/10W 5.6K	2	
R213		ERJ6GMYJ682	CHIP 1/10W 6.8K	1	
R214		ERJ6GMYJ224	CHIP 1/10W 220K	1	
R215		ERJ6GMYJ682	CHIP 1/10W 6.8K	1	
R216		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	1	
R217		EXBM16D8BLJ	RESISTOR & RESISTOR	1	
R218		ERJ6GMYJ102	CHIP 1/10W 1K	1	
R219		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	1	
R220		ERJ6GMYJ102	CHIP 1/10W 1K	1	
R221		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	1	
R222		ERJ6GMYJ823	M.RESISTOR CH1/10W 82K	1	
R223		ERJ6GMYK106	CHIP 1/10W 10M	1	
R224		ERJ6GMYJ224	CHIP 1/10W 220K	1	
R225		ERJ6GMYJ393	M.RESISTOR CH1/10W 39K	1	
R226		ERJ6GMYJ183	M.RESISTOR CH1/10W 18K	1	
R227,28		ERJ6GMYJ102	CHIP 1/10W 1K	2	
R229		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	1	
R230		ERJ6GMYJ562	CHIP 1/10W 5.6K	1	
R231		ERJ6GMYJ103	CHIP 1/10W 10K	1	
R232		ERJ6GMYJ102	CHIP 1/10W 1K	1	
R233		ERJ6GMYJ103	CHIP 1/10W 10K	1	
R234		ERJ6GMYJ562	CHIP 1/10W 5.6K	1	
R235		ERJ6GMYJ103	CHIP 1/10W 10K	1	
R236-39		ERJ6GMYJ102	CHIP 1/10W 1K	4	
R240		ERJ6GMYJ473	CHIP 1/10W 47K	1	
			TRANSFORMER		
T01		VLT0525	TRANSFORMER	1	
			FUSE		

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
TF1		VSF0061	FUSE	1	
			CRYSTAL OSCILLATOR		
X01		VSX0094	CRYSTAL OSCILLATOR	1	
			SURGE ABSORBER		
ZNR01		SNR-300K4	SURGE ABSORBER	1	
	■	VEP60049A	LED C.B.A.		(NLA)
			DIODES		
D300-02		LN81RCPHLLS	DIODE	3	
			RESISTORS		
R300		ERDS2TJ471	C.RESISTOR 1/4W 470	1	
R301,02		ERDS2TJ102	C.RESISTOR 1/4W 1K	2	
R303		ERDS2TJ471	C.RESISTOR 1/4W 470	1	

5. VW-CG2E Mechanical Replacement Parts List

Note:1.* Be sure to make your orders of replacement parts according to this list.

2.IMPORTANT SAFETY NOTICE
Components identified with the mark <!> have the special characteristics for safety. When replacing any of these components,use only the same type.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
**********		VW-CG2E			
1(1)		VKM1170	UPPER CASE	1	
2(1)		VKM1309	BOTTOM CASE	1	
4(1)		VSP0301	LUBBER CONTACT	1	
5(1)		VGU4094	SWITCH KNOB	1	
7(1)		VJA0490	OUTPUT CABLE	1	
8(1)		VEJ0675	VIDEO TERMINAL	1	
9(1)		VKF1003	BATTERY COVER	1	
10(1)		VMP1514	SHOE INSTALLATION BOARD	1	
11(1)		VJR0403	BATTERY TERMINAL (COM)	1	
12(1)		VJR0404	BATTERY TERMINAL (+)	1	
13(1)		VJR0405	BATTERY TERMINAL (-)	1	
14(2)		VPK1032	PACKING CASE	1	
15(2)		VPN2048	CUSHION	1	
16(2)		VPN2338	CUSHION	1	
17(2)		VFC0469	SHOE ADAPTOR	1	
18(2)		VQT3190	OPERATING INSTRUCTIONS	1	<!>

6. VW-CG2E Electrical Replacement Parts List

Note:1.* Be sure to make your orders of replacement parts according to this list.
2.IMPORTANT SAFETY NOTICE
Components identified with the mark <!> have the special characteristics for safety. When replacing any of these components,use only the same type.
3.Unless otherwise specified,
All resistors are in OHMS ,K=1,000 OHMS. All capacitors are in MICRO-FARADS(uf),P=uuF.
4.The P.C.Board units marked width'▮'show below the main assembled parts.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
**********		VW-CG2E			
		VEP66051E	MAIN C.B.A.	1	(NLA)
	▮	VEP66051E	MAIN C.B.A.		(NLA)
			CAPACITORS		
C1		ECUM1H103KBM	CHIP 50V 0.01U	1	
C2		ECUM1H101JCM	CHIP 50V 100P	1	
C3		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C4		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C5		ECEA1HKKR22	E.CAPACITOR 50V 0.22U	1	
C7		ECUM1H471KCM	CHIP 50V 470P	1	
C8		ECUM1H102JCM	CHIP 50V 1000P	1	
C9		ECUM1H102JCM	CHIP 50V 1000P	1	
C10		ECUM1H101JCM	CHIP 50V 100P	1	
C11		ECUM1H103KBM	CHIP 50V 0.01U	1	
C12		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C13		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C14		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C15		ECUM1H560JCM	CHIP 50V 56P	1	
C16		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C17		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C18		ECEA0JSS471	E.CAPACITOR 6.3V 470U	1	
C19		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C20		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C21		ECUM1H103KBM	CHIP 50V 0.01U	1	
C22		ECUM1H103KBM	CHIP 50V 0.01U	1	
C23		ECUM1H101JCM	CHIP 50V 100P	1	
C24		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C25		ECUM1H103KBM	CHIP 50V 0.01U	1	
C26		ECUM1H220KCM	CHIP 50V 22P	1	
C27		ECUM1H101JCM	CHIP 50V 100P	1	
C28		ECUM1H101JCM	CHIP 50V 100P	1	
C29		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C30		ECUM1H103KBM	CHIP 50V 0.01U	1	
C31		ECUM1H103KBM	CHIP 50V 0.01U	1	
C32		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C33		ECUM1H180JCM	CHIP 50V 18P	1	
C34		ECUM1H300JCM	CHIP 50V 30P	1	
C35		ECUM1H300JCM	CHIP 50V 30P	1	
C36		ECUM1H101JCM	CHIP 50V 100P	1	
			DIODES		
D1(D2)		MA153	DIODE	1	
D3(D4)		MA153	DIODE	1	
D5(D6)		MA153	DIODE	1	
D7(D8)		MA153	DIODE	1	
D9(D10)		MA153	DIODE	1	
D11		MA700	DIODE	1	
D12		MA165	DIODE	1	
D14		MA1068M	DIODE	1	
		MA1068M	DIODE	1	
		MA165	DIODE	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			INTEGRATED CIRCUITS		
IC1		UPD75106GF1	IC	1	
IC2		TC5517CFL	IC	1	
IC3		MN1287EAV	IC	1	
IC4		TC4007UBF	IC	1	
IC5		UPD4081BG	IC	1	
IC6		UPD4538BG	IC	1	
IC7		S8052ALY	IC	1	
IC8		MN1280R	IC	1	
			COIL		
L1		EL0405SKI220	COIL 22UH	1	
			TRANSISTORS		
Q1		2SB709R	TRANSISTOR	1	
Q2		2SB709R	TRANSISTOR	1	
Q3		2SD601R	TRANSISTOR	1	
Q4		2SD601R	TRANSISTOR	1	
Q5		2SD601R	TRANSISTOR	1	
Q6		2SD601R	TRANSISTOR	1	
Q7		2SD601R	TRANSISTOR	1	
Q8		2SD601R	TRANSISTOR	1	
Q9		2SD601R	TRANSISTOR	1	
Q10		2SD601R	TRANSISTOR	1	
Q11		2SD601R	TRANSISTOR	1	
Q12		2SD601R	TRANSISTOR	1	
			RESISTORS		
R1		ERJ8GCYJ153	CHIP 1/8W 15K	1	
R2		ERJ8GCYJ153	CHIP 1/8W 15K	1	
R3		ERJ8GCYJ222	CHIP 1/8W 2.2K	1	
R4		ERJ8GCYJ474	CHIP 1/8W 470K	1	
R5		ERJ8GCYJ222	CHIP 1/8W 2.2K	1	
R6		ERJ8GCYJ103	CHIP 1/8W 10K	1	
R7		ERJ8GCYJ222	CHIP 1/8W 2.2K	1	
R8		ERJ8GCYJ123	CHIP 1/8W 12K	1	
R9		ERJ8GCYJ123	CHIP 1/8W 12K	1	
R10		ERJ8GCYJ104	CHIP 1/8W 100K	1	
R11		ERJ8GCYJ224	CHIP 1/8W 220K	1	
R12		ERJ8GCYJ473	CHIP 1/8W 47K	1	
R13		ERJ8GCYJ473	CHIP 1/8W 47K	1	
R14		ERJ8GCYJ394	CHIP 1/8W 390K	1	
R15		ERJ8GCYJ101	CHIP 1/8W 100	1	
R16		ERJ8GCYJ472	CHIP 1/8W 4.7K	1	
R17		ERJ8GCYJ242	CHIP 1/8W 2.4K	1	
R18		ERJ8GCYJ102	CHIP 1/8W 1K	1	
R19		ERJ8GCYJ560	CHIP 1/8W 56	1	
R20		ERJ8GCYJ332	CHIP 1/8W 3.3K	1	
R21		ERJ8GCYJ102	CHIP 1/8W 1K	1	
R22		ERJ8GCYJ472	CHIP 1/8W 4.7K	1	
R23		ERJ8GCYJ103	CHIP 1/8W 10K	1	
R24		ERJ8GCYJ332	CHIP 1/8W 3.3K	1	
R25		ERJ8GCYJ153	CHIP 1/8W 15K	1	
R26		ERJ8GCYJ153	CHIP 1/8W 15K	1	
R27		ERJ8GCYJ621	CHIP 1/8W 620	1	
R28		ERJ8GCYJ471	CHIP 1/8W 470	1	
R29		ERJ8GCYJ152	CHIP 1/8W 1.5K	1	
R30		ERJ8GCYJ222	CHIP 1/8W 2.2K	1	
R31		ERJ8GCYJ472	CHIP 1/8W 4.7K	1	
R32		ERJ8GCYJ101	CHIP 1/8W 100	1	
R33		ERJ8GCYJ270	CHIP 1/8W 27	1	
R34		ERJ8GCYJ560	CHIP 1/8W 56	1	
R35		ERJ8GCYJ750	CHIP 1/8W 75	1	
R36		ERJ8GCYJ154	CHIP 1/8W 150K	1	
R37		ERJ8GCYJ474	CHIP 1/8W 470K	1	
R38		ERJ8GCYJK106	CHIP 1/8W 10M	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R39		ERJ8GCYJ272	CHIP 1/8W 2.7K	1	
R40		ERJ8GCYJ472	CHIP 1/8W 4.7K	1	
R41		ERJ8GCYJ472	CHIP 1/8W 4.7K	1	
R43		ERJ8GCY0R00	CHIP 1/8W 0	1	
R44		ERJ8GCYJ104	CHIP 1/8W 100K	1	
R45		ERJ8GCYJ683	CHIP 1/8W 68K	1	
R46		ERJ8GCYJ153	CHIP 1/8W 15K	1	
			COMBINATION PARTS		
RA1		EXBF9E154J	RESISTOR-RESISTOR	1	
RA2		EXBF5E154J	RESISTOR-RESISTOR	1	
			SWITCHS		
SW1		ESD14511	SWITCH	1	
SW2		ESD14513	SWITCH	1	
			THERMISTER		
TH1		ERTD2FHK332	THERMISTER	1	
			VARIABLE CAPACITOR		
VC1		VCV0032	TRIMMER	1	
			VARIABLE RESISTOR		
VR1		VRE0041	V.RESISTOR	1	
VR2		VRE0042	V.RESISTOR	1	
			CRYSTAL OSCILLATORS		
X1		VSX0260	CRYSTAL OSCILLATOR	1	
X2		VSX0259	CRYSTAL OSCILLATOR	1	
			MISCELLANEOUS		
		VWJ0329	JUMPER WIRE 19P	1	

Memo